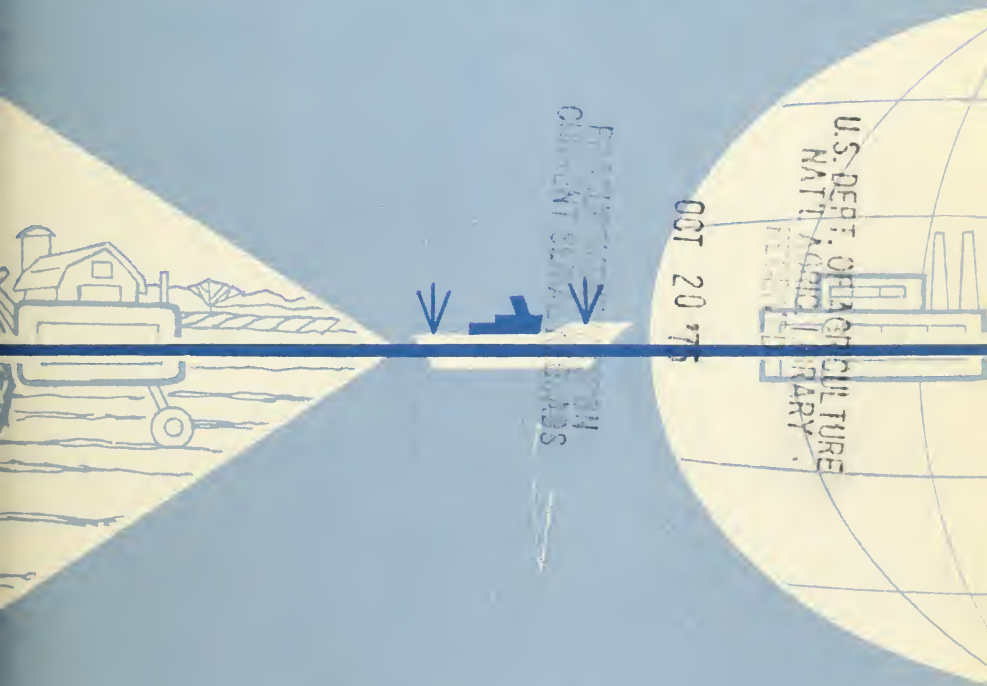
FOREIGN ECONOMIC GROWTH AND MARKET POTENTIALS FOR U.S. AGRICULTURAL PRODUCTS



Foreign Agricultural Economic Report No. 24

Development and Trade Analysis Division
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PREFACE

The American farmer has a big stake in export markets. The value of agricultural exports is now equivalent to about one-sixth of the cash receipts from farm marketing. One of the principal ways of increasing export markets for American farm products is through stimulation of general economic growth and prosperity in the countries that are now, or may become, markets for our products. Our foreign customers cannot buy much from us unless they have good incomes. This report shows that imports are directly and closely related to per capita income in the importing country.

In recognition of the increased trade benefits growing out of rapid economic growth in Western Europe, Congress passed the Trade Expansion Act of 1962. Implicit in this legislation are the assumptions that foreign economic growth will continue to expand market and income opportunities for domestic producers and that domestic economic growth will be improved through expansion of U.S. exports.

In retrospect, the above legislation is a reaffirmation of the belief in the basic relationship between development and trade originally supported in the Reciprocal Trade Agreements Act of 1934 and in the Marshall Plan of 1947. The latter emphasized the importance of foreign economic growth on long-run domestic, political, and economic security. The 1934 legislation emphasized the economic benefits of increased trade on domestic and world economic growth.

This study owes much to the administrative guidance of Drs. Kenneth L. Bachman and Raymond P. Christensen, Director and Deputy Director, respectively, of the Development and Trade Analysis Division. Wade Gregory, Chief of the Economic Development Branch, DTAD, Reed Hertford of the same Branch, and Dr. Frederick V. Waugh, Research Adviser to the Administrator of ERS, supplied many useful suggestions, particularly in the latter stages of the study.

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SUMMARY

World markets for American farm products are becoming increasingly important. The value of U.S. agricultural exports amounted to $6.1 billion in fiscal 1963-64, compared with about $3 billion a decade ago and less than $1 billion during the 1930's. They may rise another $3-4 billion by 1980 to more than $9 billion. In 1963, farm products from 80 million harvested acres--about one acre in four--were exported. These growing exports have become increasingly important in balancing our international accounts with other nations, maintaining domestic farm incomes, and stimulating economic development abroad.

Growth in world markets for U.S. agricultural products has been and will continue to be related to economic growth in other countries. Expansion of imports of U.S. agricultural products by the high-income, developed countries as well as by the low-income, less-developed countries has been directly related to the growth in per capita income in these countries. Growth in imports of U.S. agricultural products has been greatest by those countries that have achieved rapid income growth. Increased trade also has contributed to economic growth.

The U.S. share of world trade has increased over the last 25 years. During this time, the U.S. share of total and agricultural imports by the developed countries increased from 15.7 to 17.3 percent and from 8 to 12 percent for total and agricultural imports, respectively. Also, U.S. exports to the less-developed countries expanded faster than world trade or trade with the developed countries. Consequently, the percentage increases in imports from the United States by the less-developed countries were significantly higher than in the developed countries over the past 2 decades. The U.S. share of total imports of the less-developed countries increased from 18.1 to 22.8 from 1938 to 1959-61. The U.S. share of agricultural imports increased from 8.1 to 23.4 percent.

In this study, the income-trade relationship is defined and measured in terms of import elasticities. Simply defined, the elasticity of imports is the percentage change in imports associated with a 1-percent change in income per capita. Analysis of trade and income data from 1938 to 1959-61 for all countries importing from the United States shows that total imports per capita from the United States increased about 12 percent for each 10-percent increase in per capita income in these countries. Agricultural imports increased about 11 percent for each 10-percent increase

in per capita income. Should these relationships prevail for the next 2 decades, the value of total U.S. exports would increase from $19.53 billion in 1959-61 to $42 billion by 1980. During this time, agricultural exports would increase from $4.61 billion in 1959-61 to $9.8 billion. These estimates depend upon a continuation of current population and economic growth conditions.

The results of this study clearly indicate a definite and positive relationship between growth in income and trade. They also indicate that future expansion in the demand for U.S. agricultural and other products will continue to be closely tied to world economic conditions. Rapid economic growth abroad will help maintain a steady growth in U.S. agricultural and total trade; economic stagnation and recessions abroad will brake trade expansion and reverse the current growth trend in U.S. exports. Under these conditions, market outlets for an increasing part of American agricultural products will become more and more dependent upon the rate of economic progress in other countries. And, since the greatest market potential for U.S. agricultural products is in the developing countries, it would be in our own economic interest to help promote economic growth in these less-developed countries.

FOREIGN ECONOMIC GROWTH AND MARKET POTENTIALS FOR U.S. AGRICULTURAL PRODUCTS

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CHAPTER I. ORGANIZATION OF STUDY

The Problem

This study is concerned with the relation between economic growth and trade, and specifically with the prospects for U.S. agricultural trade as world economic growth continues. Many questions have been raised about the future of U.S. agricultural exports by legislators, administrators, businessmen, farmers, and economists.

World markets are gaining increasing importance in the marketing of American farm products. Currently, the United States is the world's largest exporter of farm products. These exports totaled over $6 billion in 1963-64--an amount equal to the combined exports of Australia, New Zealand, Canada, and Argentina. In the 1950's, agricultural exports averaged around $3 billion annually. In 1963, farm products from 80 million harvested acres--about one acre in four--were exported.

A number of political and economic factors which affect trade trends make future changes in trade difficult to predict. This report is concerned with one of the most important of economic factors--economic growth. It attempts to answer a number of questions about the basic relationship between economic growth and trade. These include:

1. What are the basic economic determinants of trade?
2. What has been the relationship between world economic growth and trade?
3. What has been the relationship between world economic growth and U.S. total and agricultural trade?
4. What can we expect the basic income-trade relationship to be for the next decade?
5. What are the implications of continued world economic growth for American agriculture?

The Purpose

The purpose of this study is to shed some light on the questions currently being raised about the increasingly important but complex problem of income-trade relationships and to provide an improved basis for making trade projections based on economic growth potentials. Prior to this study, very little work had been done on evaluating the impact of foreign economic growth on the demand for U.S. agricultural products (7).[1] Yet, such knowledge is essential for making projections of trade potentials and improving the basis for formulating U.S. agricultural production and export programs, as well as economic aid policies designed to promote foreign economic growth and trade.

The specific objective of this study is to investigate the basic relationship between rising incomes created by the growth process, and changes in the level of total and agricultural imports from the United States in countries at different levels of economic development. Description and measurement of this relationship are of particular interest, since this relationship may be similar in nature for all countries and most indicative of the "growth path" of imports associated with economic growth.

Determination of how foreign economic growth in the less-developed and developed countries may affect market outlets for U.S. farm products is especially important for projecting what products will be needed to meet future needs--both foreign and domestic--in the years ahead. The short- and long-run effects of foreign economic development on the demand for U.S. farm products (both volume and composition) by countries in different stages of economic development are not well known. Therefore, formulation of agricultural production policies to facilitate adjustments in production and use of resources become difficult. More information is needed, especially on the long-run prospects of market outlets for farm products being created by world economic growth. The relationship between continued economic growth and demand for U.S. products in developed and less-developed countries needs to be more clearly defined in terms of market potentials for manufactured and agricultural products.

Traditionally, the best export markets for U.S. agricultural products have been in the developed countries. These countries have higher incomes per person, and their consumers demand not only a larger volume, but also a much greater variety of farm products than the less-developed countries. Significant increases in U.S. agricultural exports have occurred also in those developing

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[1] Underscored numbers in parentheses refer to items in the Bibliography, page 65.

countries where employment and incomes are increasing. Rapid growth in population and income will increase the demand for more and better foods in these countries. These expected developments suggest that the developing countries of the Free World may have a tremendous need for more food and fiber. This need will be translated into market demand if economic growth can be stimulated and national incomes increased. These considerations indicate that foreign economic growth has had and will continue to have a positive effect upon expansion of U.S. agricultural and total trade. Measurement of these relations can provide insights into probable future trade developments.

The Method of Analysis

In order to measure the basic income-trade relationship or "expansion path" of trade associated with the growth process, trade and income data are analyzed for and between 2 time periods, 1938 and 1959-61, for all countries for which income and trade data are available. The 1938 period was chosen for cross-sectional analyses of income and trade data to give a prewar benchmark for evaluating possible changes in the "income-trade" relationship over time. In addition, more income and trade data were available for more countries in 1938 than for earlier years, or since 1961. The latter time period was chosen because it appeared to be most indicative of future economic conditions at home and abroad. Also, lack of agricultural trade data since 1961 for most of the less-developed countries made it advisable to choose 1959-61 as the period to analyze total as well as agricultural trade and income data.

In this study, changes in total and per capita income are used as measures of economic growth. Special attention is given to how economic growth and incomes abroad influence exports of U.S. agricultural products. Income and trade data are compared on a per capita basis for one prewar and one postwar period for all countries as well as for selected groups of countries. Income and trade data are expressed in current U.S. dollars and are not adjusted for inequalities in the purchasing power among countries. Data on country imports from all countries are on an f.o.b. basis, while country imports from the United States are the f.o.b. values of U.S. exports to each country.

For purposes of this analysis, countries have been classified into 3 major groups: developed, less-developed, and Eastern Trade Area or Soviet-type economies. The first category includes North America, Western Europe, Japan, Australia, New Zealand, and the Republic of South Africa. Within Western Europe a further distinction has been made between the countries of the European Economic

Community (EEC), the European Free Trade Area (EFTA), and other Western Europe (OWE). The countries participating in the EEC (sometimes called the Common Market) are Belgium, France, the Federal Republic of Germany, Italy, Luxembourg, and the Netherlands. The countries in EFTA include Austria, Denmark, Norway, Portugal, Sweden, Switzerland, and the United Kingdom. The other Western Europe area includes Finland, Greece, Iceland, Ireland, Spain, Turkey, and Yugoslavia.

According to the system of classification used in this study, the countries of Latin America, Africa, and Asia are regarded as "developing" or less-developed. Latin America is defined to include all countries of South and Central America, as well as Mexico and the West Indies. Africa is understood to refer to all African countries except the Republic of South Africa. Asia refers to all countries and islands except Japan, Mainland China, Mongolia, North Korea, and North Vietnam.

Finally, the Eastern Trade Area (ETA) includes all Soviet-type economies previously excluded in Asia, the Union of Soviet Socialist Republics, and all countries in Eastern Europe.

Delineation of the world on the above basis makes it possible to analyze trade and income data on an aggregate basis with respect to stages of economic development and to compare the results of aggregate analysis with individual country analysis. It also gives some insights into the effects of political restraints on trade, which are deliberately imposed by the Eastern Trade Area countries.

One way to evaluate the effect of economic growth on trade is to determine how imports have been related to changes in income over time in different areas or groups of countries. Such comparisons are made for developed and less-developed countries in 1938 and 1959-61 to determine how fast total and agricultural imports grew with changes in income through time.

Another method used in the study to measure the income-trade relationship is to compare income and trade data for different countries and groups of countries within a single time period. The effect of moving up the development scale or income level in the same time period is analogous (but not identical) to movement of a particular country over time through the different stages of development.

Fundamental to the analysis of economic growth and trade in this study is the recognition that the demand for imports is part of the total demand for agricultural products. Also, an increase in the total demand for, say, agricultural products growing out of increased consumer incomes also expands the demand for agricultural imports. The extent to which the demand for imports increases with economic growth, of course, depends upon the growth in domestic supplies and the demand for agricultural products.

In any case, a measure of the changes in the value of imports associated with changes in income--"elasticity of imports"--can be determined for all countries, regardless of the stage of economic growth. Briefly, the elasticity of imports is the percentage increase in imports that would result from a 1-percent increase in income. For example, with an elasticity of 1.0, a 10-percent change in income will be associated with a 10-percent change in the value of imports per capita. Similarly, an import elasticity of 0.8 would indicate that a 10-percent increase in income per capita would lead to an 8-percent increase in the value of imports. And, an elasticity of 1.3 would mean that a 10-percent increase in income would result in a 13-percent increase in imports.[2] This measure will be used in this study because it enables one to deal with the vast differences in conditions and restrictions to trade in countries at different stages of economic growth.

Projections of aggregate market potentials for U.S. agricultural products are made for 1980 on the basis of the income-trade relationship found in the cross-sectional analysis of all countries in 1959-61 and on the historical income-trade relationship for the whole period 1938 to 1959-61. Projections for individual commodities were not made, as they were outside the scope of this study.

A more detailed analysis of the changes in demand for particular commodities that are associated with economic growth is needed, so that trade projections can be improved to include market potentials for specific commodities. While this study was concerned primarily with the estimates of the total volume of agricultural trade, the methodology employed here can be extended in any future study to include an analysis of the effect of economic growth on changes in the commodity composition of trade.

CHAPTER II. ECONOMIC GROWTH AND TRADE

Prosperous nations trade much more than less-prosperous or low-income countries. In an underdeveloped country, each community is relatively self-sufficient and there is little trade even among regions of the country. As economic growth proceeds, trade

[2] The elasticity used in this study is of the value of imports with respect to per capita income. The value of imports is quantity multiplied by price. It is the value of imports that determines the income received by the exporting countries. Also, import data are generally available in terms of value--not in terms of tons or bushels. More specifically, as used in this study the term "value of imports" is used in place of the more exact meaning "expenditures on imports."

increases among areas within a country and with other countries. Thus, the actual and potential level of trade between countries depends upon their level of economic growth and development.

Growth in trade usually means more imports of agricultural products as well as industrial products. With economic growth, consumers achieve more purchasing power and begin to demand foods not widely grown in their country. Therefore, diversity of consumption, as well as increased specialization of production created by the economic growth process, leads to increased trade.

Recent world trade statistics show that imports of agricultural and other goods have actually increased most rapidly in those countries with the most rapid rate of industrial and general economic growth during the past 2 decades. Thus, the postwar trade-income ratios for the United States and other countries suggest that a positive and complementary relationship exists between economic growth and trade, and that the actual and potential level of total and agricultural trade between countries depends upon their levels of economic development.

The complementary relationship between economic growth and trade has long been recognized. In 1580, for example, Richard Hakluyt, an English historian and geographer, said to English merchants:

> "If you find any island or maine land populous, and the same people hath need of cloth, then you are to advise what commodities they have to purchase the same withal. If they be poore, then you are to consider the soile and how by any possibilities the same may be made to enrich them, that hereafter they may have something to purchase the cloth withal." (4)

In the 17th and 18th centuries the Mercantilists emphasized the importance of expanding exports as a means for increasing national wealth through favorable balances of trade (19, 28, 40, 57). Imports were thought to be detrimental to domestic industrial growth and were, therefore, discouraged. The idea of mutually advantageous trade eluded them. It was not until the 19th century that the beneficial relationships of both exports and imports on economic growth were emphasized. Even then, the doctrines of trade and development placed more emphasis on exports and the role of trade as an "engine of growth" that transmitted economic growth from the industrial center, England and Western Europe, to the newly settled lands overseas (34). Generally, most economists at that time thought that economic growth of a country also would reduce its dependence on foreign trade and that the spread of industrialization throughout the world would eventually diminish the importance of

international trade (19, 34, 57). Analysis of world trade and income data over the past 2 decades suggests that this pessimistic view of world trade is not substantiated in fact; historically, growth in total U.S. exports has equalled growth in total production since 1879, except from 1920 to 1940 (29).

Although current world economic conditions are greatly different from those of a century ago, the complementary relationships between trade and economic growth still exist in the 1960's. Today, however, exports and imports are emphasized as being essential for world trade expansion and economic growth. Exports are still important as they provide the necessary foreign exchange to pay for imports. Imports are necessary, and sometimes vital, to the growth process, especially in the less-developed countries.

Economic Growth Increases Demand for Imports

Countries in the preliminary stages of industrialization tend to need a greater volume of imports than they can pay for with their exports. Practically all countries in this stage of development--with the exception of those that are unusually well endowed with natural resources, such as petroleum--are faced with balance-of-payments difficulties.[3] In these countries, shipments of agricultural products under Public Law 480 (P.L. 480) can be useful in bypassing balance-of-payments problems, thereby permitting internal demands to be reflected in actual imports to a greater extent. Thus, the relationships between income and trade analyzed in this study in large part abstract from balance-of-payments considerations. However, these relationships do reflect the demands that must be met if economic growth is to be maintained. Further, most of these P.L. 480 shipments are marketed on a commercial basis within the recipient countries.

Capital and capital goods imports are needed to finance economic growth; food imports are needed to meet the rapidly rising demand created by the growth process. For example, failure by developing countries to import food to fill the demands created by rising incomes can have serious consequences on a developing economy. Food prices are likely to rise sharply, and since food is the principal expenditure of consumers, less food can be purchased with current income. Thereby, strong pressure for increasing wages in nonfarm industries is created. Rising wages soon lead to a cost-price inflation spiral which in turn reduces the rate of economic

[3] An example of this tendency of developing countries can be found in the early history of the United States. This country consistently ran a deficit balance of international payments prior to 1900 (54).

growth. And, because agriculture's relative income position is likely to fall in the adjustment process, agricultural improvement may also be hampered. Similarly, in the more advanced countries, failure to import food and agricultural raw materials not widely and efficiently produced domestically, which will satisfy the growing and diversified demand created by rising incomes, can increase prices and encourage inefficient domestic production. These factors often act as a drag upon the growth process and brake the forces generating economic growth and trade. Thus, the changing nature of the demand and supply of food associated with economic growth also affects the level and composition of actual and potential trade between countries.

The nature of supply and demand for food is related to the stage of economic growth. Growth in the demand for food, as well as the ability of a country to meet this demand either by its own agricultural production or by international trade, varies from country to country. But growth conditions of both the demand and supply of food are similar in less-developed countries. For example, in countries well below the take-off stage in economic growth, growth in per capita income and agricultural production is often very slow. Food production increases very slowly in these countries because of lack of capital, low educational levels, and slow adoption of improved production technologies. Increase in total demand for food is primarily a function of population growth. But since population growth is often rapid, food requirements may increase faster than food supplies.

On the other hand, countries experiencing a rapid rate of growth in per capita income and agricultural production are faced with an ever-increasing demand for food--a demand that usually outpaces the domestic supply when food expenditures are a large proportion of total expenditures. Under such conditions, if this increased demand for food imports is not met through increased trade, inflation occurs and may slow down the rate of economic growth. As a result, to keep the growth process going, food imports must continue to increase rapidly, either as trade or as aid. Once the take-off stage of economic growth is passed, the gap between food supplies and demand tends to widen with rapid and sustained economic growth. The effect of economic growth in rapidly developing countries then is to increase the demand for food and thus to increase agricultural trade (8).

Factors Affecting Trade

Many factors affect the level of trade between countries. Some of these are general and preferential tariffs, quantitative restrictions,

international liquidity, bilateral arrangements, exchange restrictions, consumption habits, comparative costs, colonial or sovereignty status, income, population, and basic resource endowments (1, 9, 28). From this analysis, the average level of income appears to be one of the more important factors in determining the level of total and agricultural import trade (1, 25, 33, 36, 39).

The above factors, especially comparative costs, are important in establishing original trade patterns but probably become less and less important as economic growth proceeds. As a country grows and its per capita income increases, the demand structure of the country changes. As a consequence, the range of potential and thus of actual trade changes. Changes in trade patterns introduce gradual change in the pattern of specialization and division of labor, and thereby alter the pattern of trade over time. Thus, the effect of changes in per capita income over time is to alter the long-run patterns and composition of agricultural trade, as well as of world trade. A positive rate of economic growth induces some positive increase in the demand for imports, and hence the level of actual and potential trade. Therefore, it is assumed that the actual and potential level of trade between countries will be related to their level of income per capita.

CHAPTER III. WORLD ECONOMIC GROWTH

Economic growth, as used here, refers to an increase in output or income per capita from 1938 to 1959-61. A more precise definition of economic growth would, of course, include a discussion of the many complex interrelationships among the various segments or aspects of an economy, such as production, employment, consumption, capital accumulation, and many other political, social, and economic factors. However, to simplify discussion, the general definition of economic growth is used: an increase in per capita income which is the end result of the interplay of all economic forces that generate economic growth and economic progress (1, 25, 28).

An analysis of the effect of world economic growth on trade must include the effect of growth in population and income on the changes in demand and consumption of agricultural and other products. First of all, the size and distribution of total income among countries affect the level and magnitude of trade between countries. Second, the rate of growth in population and income in each country affects the rate of growth in trade between countries. Thus, we are not only concerned with the initial size, distribution,

and magnitude of population and income among countries, but also with the growth rate of each and the effects of these growth rates on incomes, purchasing power, and demand for internationally traded goods and services. Under these conditions, the growth rate in imports (I_m), whether agricultural or nonagricultural, can be expressed simply by the formula Im = P+EY, where P and Y stand, respectively, for growth rate of population and real income per capita, and E denotes the import elasticity. Here, the import elasticity is simply a measure of the ratio of the change in imports to changes in income during economic growth.

Population

In some less-developed countries, growth in population affects growth in agricultural imports more than growth in income. On the other hand, in rapidly developing and developed countries the income effect predominates. Generally, growth in population has been higher in less-developed and developing countries during the past 2 decades than in the developed countries. Concentration of population has also been greatest in these low-income countries.

About two-thirds of the world's population is in the Free World and about one-third is in the Communist World, referred to here as the Eastern Trade Area (table 1). Within the Free World, about one-third of the people live in the developed countries and about two-thirds in the less-developed areas. These proportions of population by major groupings of countries have changed very little since 1938. As shown in table 2, the less-developed countries have had a higher annual growth rate (1.4 percent) in population during the past 2 decades than the developed countries (.9 percent). However, during this past decade, the population growth rate in the less-developed countries increased to 2.4 percent. Since current population projections for the next 2 decades are expected to exceed this rate, distribution of population among the developed and less-developed world will change. For example, an even larger proportion of the Free World population will be classified as less-developed by 1980 (45).

Income

Measurement of economic growth is usually done on the basis of growth in real per capita income over time. Such a measure of growth was used in this study. But measurement of income on a comparable basis for all countries, of course, involves errors of measurement within countries as well as errors in converting all

TABLE 1.--Estimates of population and income by major regions, 1938 and 1959-61 averages[1]

Economic area[2]	Population		National income	
	1938	1959-1961	1938	1959-1961
	Million	Million	-Billion U.S. Dollars-	
Developed	556	672	178	757
United States	132	181	74	414
Other countries	424	491	104	343
Less developed	946	1,273	28	141
Eastern Trade Area	744	997	34	226
World total	2,246	2,942	240	1,127
	Percentage distribution			
	----------Percent----------			
Developed	25	23	74	67
United States	6	6	31	37
Other countries	19	17	43	30
Less developed	42	43	12	13
Eastern Trade Area	33	34	14	20
World total	100	100	100	100

[1] International Monetary Fund (24) and United Nations (39, 40, 41, 43, 44, 45, 47, 50, 51, 53, 54).

[2] Other developed countries include Belgium-Luxembourg, West Germany, France, Italy, Netherlands, Austria, Denmark, Finland, Greece, Iceland, Ireland, Norway, Spain, Sweden, Switzerland, Turkey, United Kingdom, Yugoslavia, Australia, New Zealand, Republic of South Africa, Canada, and Japan. Less-developed countries include Africa (all countries except Republic of South Africa), Latin America, and Asia (except Japan, Mainland China, Mongolia, North Korea, and North Vietnam). Eastern Trade Area includes USSR, all countries in Eastern Europe, Mainland China, Mongolia, North Korea, and North Vietnam.

TABLE 2.-- Annual rates of growth of population and income, and per capita income estimates in constant prices for major areas, 1938 to 1959-61[1]

Population and income	Developed countries			Less-developed countries	Eastern Trade Area	World
	All	United States	Others			
	----------Percent (compounded)----------					
Population	.9	1.5	.7	1.4	1.4	1.3
Income:						
Total	2.9	4.2	1.6	3.7	4.8	3.3
Per capita	2.0	2.7	.9	2.3	3.4	2.0
	----------1953-55 U.S. dollars[2]----------					
Per capita income estimates:						
1938-40	658	1,152	505	61	91	219
1959-61	987	2,005	611	98	193	333

[1] Based on data in tables 1 and 3.

[2] Income data are unadjusted for inequalities in purchasing power among countries and deflated by 1953-55 average of implicit GNP deflator for the United States (52).

monetary units to a common currency.[4] In this study, all income data for all countries were converted to U.S. dollars on the basis of published exchange rates for countries with a single rate and on the basis of the free rate or principal import rate for countries with multiple exchange rates. Growth rates in per capita income were obtained from country data expressed in 1953-55 U.S. dollars. (A more detailed discussion of this procedure is given in the appendix, page 70.)

Economic growth, as measured by growth in national income per capita, has occurred in all major regions of the world since 1938. It has been most rapid and sustained, especially in this past decade, in Western Europe, North America, Oceania, and Japan--the developed countries (56). Economic growth has also occurred in the less-developed countries, but not at a sufficient rate to reduce the growing imbalance in the real income gap between the developed and less-developed regions of the world. In fact, this income gap, in absolute as well as in relative terms, appears to be increasing even though the relative growth rate for total national income (table 2) has been higher in the less-developed countries (3, 27, 31, 56). While real growth in national income from 1938 to 1959-61 in the less-developed countries (3.7 percent) exceeded that of the developed countries (1.6 percent), higher rates of population growth in the less-developed countries and higher rates of income growth in the developed countries since 1953-55 nullified any progress in per capita income. For example, the estimated income per capita in current prices for the developed and less-developed countries (table 3 and fig. 1) for 1938 was $321 and $48, respectively, or an absolute difference of $273. (In 1953-55 prices, the difference was $597). By 1959-61, the absolute difference in per capita incomes had increased to $1,015. (In 1953-55 prices, the difference was $890). The income gap has also increased in relative terms. In 1938, per capita income was about 15 percent of the developed countries, and only 11 percent in 1959-61.

[4] Income estimates for the less-developed countries, where much production is for subsistence, have many limitations. International comparisons of incomes necessarily involve statistical difficulties of measurement, reliability, and comparability. The difficulties of placing estimates on a strictly comparable basis and avoiding bias are probably quite minor when comparisons are made between industrial countries, but are more significant for comparisons made between developed and less-developed countries (3). The hazards of using national income estimates for international comparisons should not prevent their use in analysis of trade and development--if proper attention is given to the effects of such errors of estimation. There may be some underestimating of income in the less-developed countries because of difficulties in placing values on subsistence production, which accounts for a large part of total income in these areas. But even with upward revision of income data for the less-developed countries, developed countries would still account for the major part of world production and income, and, as we shall see later, account for a major portion of international trade.

TABLE 3.--Per capita income estimates, by economic areas and countries, averages for 1938 and 1959-61[1]

Economic area and country	1938	1959-61
	Dollars	Dollars
Developed	321	1,126
North America		
Canada	383	1,558
United States	563	2,289
Oceania		
Australia	421	1,170
New Zealand	440	1,298
Others		
Japan	92	346
Repub. of So. Africa	174	397
EEC[2]	293	855
Belgium-Luxembourg	262	1,017
France	267	1,007
Germany, Federal Republic of	395	1,024
Italy	144	513
Netherlands	321	801
EFTA[3]	390	1,019
United Kingdom	462	1,095
Denmark	375	1,058
Norway	332	973
Sweden	438	1,487
Austria	161	671
Portugal	84	233
Switzerland	473	1,382
OWEC[4]	96	281
Iceland	---	934
Ireland	253	531
Finland	181	811
Greece	81	334
Spain	101	296
Turkey	68	176
Yugoslavia	96	217
Eastern Trade Area	46	227
USSR	105	648
Eastern Europe		
Czechoslovakia	135	651
Hungary	125	520
Poland	95	533
East Germany	---	273
Bulgaria	110	195
China (Mainland)	17	74
Less developed	[5] 48	111
Africa		
Ghana	---	212
Algeria	---	219
Mauritus	---	210
Tunisia	---	158
Rhodesia and Nyasaland	17	161
Egypt	74	154
Morocco	---	[2] 124
Libya	---	[6] 146
Liberia	---	[6] 105
Kenya	---	87
Sudan	---	87
Togo	---	[6] 84
Nigeria	---	81
Congo (Belgium)	55	70
Niger	---	[6] 68
Guinea	---	56
Tanganyika	---	51
Uganda	---	38
Ethiopia	---	68
Asia		
Israel	---	763
Cyprus	---	341
Lebanon	---	331
Malaya	---	217
Iraq	---	162
Iran	---	140
Philippines	28	131
Syria	---	126
Jordan	---	168
Korea (South)	---	102
Ceylon	50	121
China (Taiwan)	---	110
Thailand	26	84
Cambodia	---	87
Pakistan	---	76
India	34	68
Indonesia	22	56
Burma	28	50
Latin America		
Venezuela	111	729
Puerto Rico	149	634
Chile	172	491
Trinidad	---	468
Uruguay	---	435
Jamaica	---	355
Cuba	95	335
Panama	102	335
Argentina	270	363
Costa Rica	76	313
Mexico	59	312
Barbados	---	245
Dominican Repub.	46	171
British Guiana	---	213
Nicaragua	50	239
Colombia	74	203

TABLE 3.--Per capita income estimates, by economic areas and countries, averages for 1938 and 1959-61[1]--Continued

Economic area and country	1938	1959-61	Economic area and country	1938	1959-61
Less developed			Brazil.....	48	130
Latin America, con.			Peru.....	59	139
Honduras.....	54	182	Bolivia.....	44	107
El Salvador.....	37	168	Paraguay.....	39	105
Guatemala.....	54	153	Surinam.....	55	100
Ecuador.....	79	145	Haiti.....	50	88

[1] Per capita income unadjusted for inequalities in purchasing power among countries. Income data were converted to U.S. dollars according to published exchange rates, except for countries with multiple exchange rates in which cases the free or principal import rates, or both, were used. For sources of data, see table 1, footnote 1.

[2] European Economic Community.

[3] European Free Trade Area.

[4] Other Western European countries.

[5] Based on a limited number of countries.

[6] Lester R. Brown, (5).

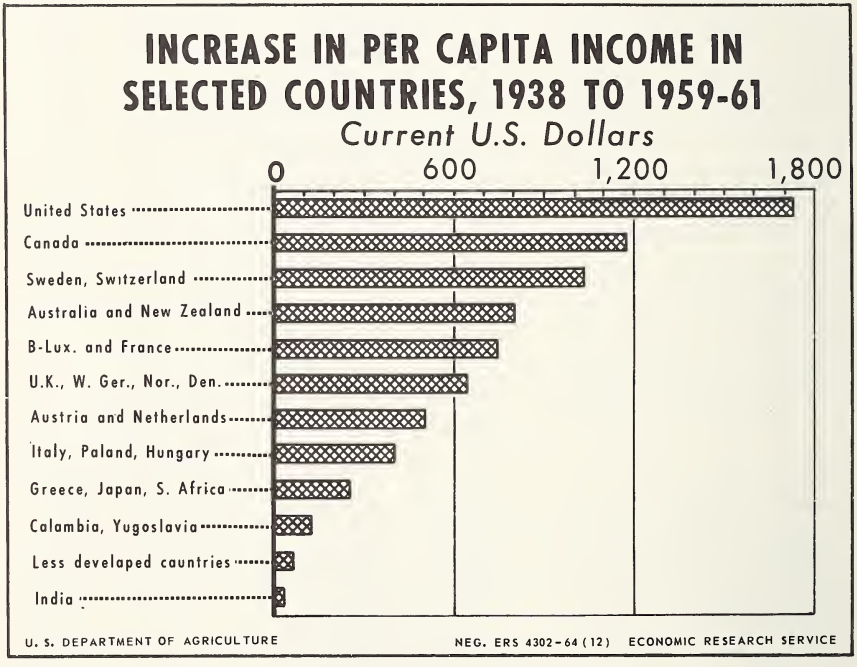

Figure 1

Income Distribution Among Countries

Available data indicate that in 1938 the developed countries, with about one-fourth of the world's population, had about three-fourths of the world's income. The remaining income (table 1) was about equally divided between the less-developed countries (12 percent) and the Eastern Trade Area countries (14 percent). By 1959-61, the developed countries' share of world income declined to 67 percent, with the less-developed countries and the Eastern Trade Area increasing their share of world income to 13 and 20 percent, respectively. Within the Free World (excluding the Eastern Trade Area), about 86 percent of the world's income was accounted for by the developed countries in 1938 and 84 percent in 1959-61--indicating a slight relative income gain by the less-developed countries. The gain in income per capita, however, was offset by the higher rate of population growth since 1953-55. These income changes have had a definite effect on world and U.S. agricultural trade over the past 2 decades.

CHAPTER IV. RELATION OF INCOME AND TRADE

Income is a major factor in world trade. There is much more trade between industrialized countries than between nonindustrialized countries or between industrialized and nonindustrialized countries. The higher levels of income and demand in the developed countries generate higher levels of actual and potential trade than in less-developed countries.

Postwar economic growth in Japan and Western Europe, especially in the European Economic Community (EEC), has made these countries our best customers for agricultural and other products. For example, in 1963 Japan, the United Kingdom, Canada, the Netherlands, and West Germany, in the order listed, were the largest importers of agricultural products from the United States (fig. 2). These countries have highly developed agricultural as well as industrial sectors. Exports--both total and agricultural--to these countries can be expected to increase during the 1960's as they achieve still higher levels of incomes.

Japan is a good example of how economic growth has expanded the country's actual and potential trade with other countries. Rapid economic growth since World War II has made possible an expansion in imports of all goods and services from all countries. In current U.S. dollars, total imports increased from $990 million in 1938 to $4.8 billion in 1961, or 3.8 times. During this time, total imports

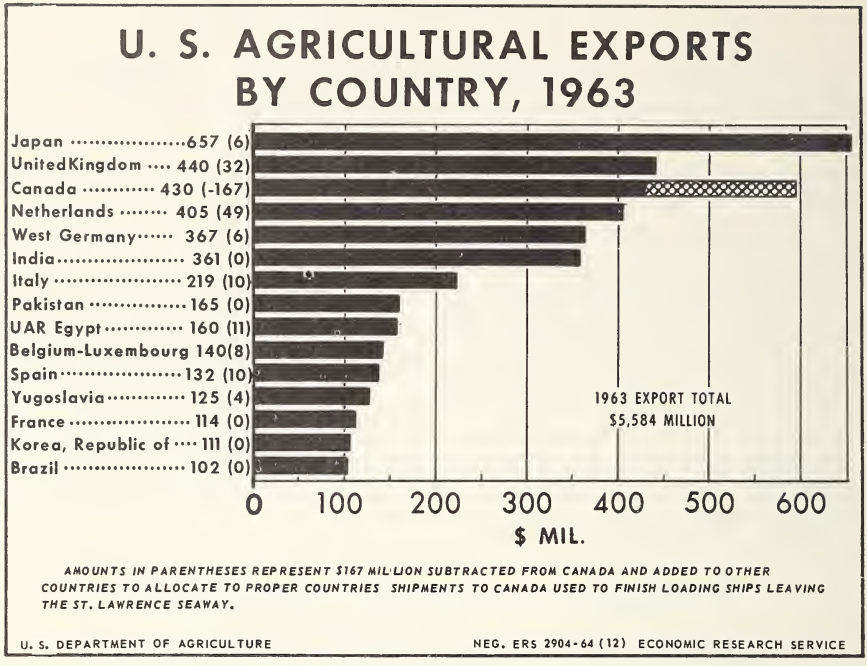

Figure 2

from the United States increased 6.2 times, or from $240 million to $1.7 billion. U.S. agricultural exports to Japan increased from $44 million in 1938 to $458 million in 1959-61, or 9 times. On a per capita basis, the value of agricultural imports from the United States increased from $.63 to $4.91 from 1938 to 1959-61.

From 1950-63, Japan has consistently ranked at or near the top as a U.S. agricultural market. Only the United Kingdom has been a serious contender for the No. 1 position. The emergence of Japan as a major market for U.S. agricultural products is the outstanding example of how postwar economic aid by the United States has expanded commercial markets for U.S. farm products. From 1948 (when the Marshall Plan began) to 1962, Japan has received about $2.5 billion of U.S. aid. About $200 million of this aid was for food under P.L. 480 in 1954-57. By 1962, financial and food aid had been almost phased out. In 1962, about 98 percent of all agricultural imports from the United States was paid for with dollars. In contrast to 1962, noncommercial or food aid shipments in 1954-57 accounted for about 30 percent of total agricultural imports. Continued economic growth in Japan will open up even greater markets for U.S. agricultural products, since the scarcity of land in Japan will not permit the flexibility in domestic agricultural production needed to satisfy completely the growing diversified demand for foodstuffs.

Since World War II, trade with less-developed countries has also increased as levels of income and economic growth have increased. How rapidly markets will continue to expand in these countries in the years ahead depends, of course, on how rapidly they can achieve economic growth and increase export earnings. The sooner these countries become developed, the greater the opportunity to sell them agricultural products on a commercial basis. If our technical assistance and food and other aid programs are effective in improving income levels in low-income countries, our long-term commercial markets for agricultural products will be increased. For example, economic growth during the 1950's in Italy, Spain, and Venezuela has led to expanded export markets for American farm products on a commercial basis in the 1960's.

World Trade

The central feature of contemporary international trade is that the economically advanced countries are each other's best customers. This fact is not entirely surprising since the principal determinant of trade appears to be income. The higher the level of per capita income, the greater the likelihood that trade will expand between countries (28). World trade data clearly indicate the importance of the developed countries as markets for each other's products and for those of the less-developed countries (tables 4 and 5).[5] The importance of the developed countries in world trade is also shown in figure 3.

Per Capita Income and Trade

The absolute level of imports per capita is highest in the developed countries. A comparison of income, exports, and imports for 2 groups of countries--developed and less-developed--in 1959-61 illustrates the importance of the level of income on the actual level of trade (table 6). The relation of income and trade is also shown graphically in figure 4 for imports of commercial agricultural products from the United States by countries with different levels of income in 1959-61.

[5] The import data shown in tables 4 and 5 were compiled by the United Nations. No attempt was made to further adjust these data for inequalities in the purchasing power among countries, or to deflate for changes in prices or value of the U.S. dollar. Like the income data in table 3, the world trade data are assumed to be the best available estimates. Although these data have many limitations, they do reflect the relative income-trade relationships that have existed over time for countries in different stages of economic growth.

TABLE 4.--World trade by major regions (f.o.b. values), 1938, 1953-55, and 1959-61 averages[1]

Region[2]	1938		1953-55		1959-61		Net export (+) or import (-)[3]		
	Exports	Imports	Exports	Imports	Exports	Imports	1938	1953-55	1959-61
	Billion U.S. dollars								
Trade of developed countries with:									
Each other	10.41	10.41	36.06	36.06	57.65	57.65	0	0	0
Less developed	3.45	4.24	15.13	16.12	20.72	19.46	-.79	-.99	1.26
Eastern Trade Area	1.23	1.76	1.26	1.50	3.08	3.00	-.53	-.24	.08
Total	15.09	16.41	52.45	53.68	81.45	80.11	-1.32	-1.23	1.34
Trade of less-developed countries with:									
Developed	4.24	3.45	16.12	15.13	19.46	20.72	.79	.99	-1.26
Each other	1.28	1.28	5.41	5.41	5.97	5.97	.00	.00	.00
Eastern Trade Area	.18	.34	.46	.50	1.22	1.33	-.16	-.04	-.11
Total	5.70	5.07	21.99	21.04	26.65	28.02	.63	.95	-1.37
Trade of Eastern Trade Area with:									
Developed	1.76	1.24	1.50	1.26	3.00	3.08	.52	.24	-.08
Less developed	.34	.18	.50	.46	1.33	1.22	.16	.04	.11
Each other	.26	.26	6.58	6.58	10.68	10.68	.00	.00	.00
Total	2.36	1.68	8.58	8.30	15.01	14.98	.68	.28	.03
Undistributed[4]	---	---	2.96	2.96	1.74	1.74	0	0	0
World total	23.15	23.15	85.98	85.98	124.85	124.85	0	0	0

[1] Data obtained from United Nations (50, 51) and GATT (15, 16, 17).
[2] For countries included in regions, see table 1, footnote 2.
[3] Does not include special category of U.S. exports.
[4] Special category of exports of the United States not distributed by regions.

TABLE 5.--Agricultural trade by major regions (f.o.b. values), 1938, 1953-55, and 1959-61 averages[1]

Region[2]	1938		1953-55		1959-61		Net export (+) or imports (-)		
	Exports	Imports	Exports	Imports	Exports	Imports	1938	1953-55	1959-61
	Billion U.S. dollars								
Trade of developed countries with:									
Each other	4.3	4.3	11.7	11.7	15.5	15.5	0	0	0
Less developed	.6	2.6	2.4	9.9	3.7	10.8	-2.0	-7.5	-7.1
Eastern Trade Area	.4	.5	.4	.6	.7	1.2	-0.1	-0.2	-0.5
Total	5.3	7.4	14.5	22.2	19.9	27.5	-2.1	-7.7	-7.6
Trade of less-developed countries with:									
Developed	2.6	.6	9.9	2.4	10.8	3.7	2.1	7.5	7.1
Each other	.3	.3	2.4	2.4	2.5	2.5	0	0	0
Eastern Trade Area	.1	.1	.3	.3	1.0	.3	0	0	.7
Total	3.0	1.0	12.6	5.1	14.3	6.5	2.1	7.5	7.8
Trade of Eastern Trade Area with:									
Developed	.5	.4	.6	.4	1.2	.7	0.1	0.2	.5
Less developed	.1	.1	.3	.3	.3	1.0	.0	.0	-0.7
Each other	.1	.1	[3] 2.5	[3] 2.5	2.6	2.6	.0	.0	.0
Total	.7	.6	3.4	3.2	4.1	4.3	0.1	0.2	-0.2
World total	9.0	9.0	30.5	30.5	38.3	38.3	0	0	0

[1] Trade data are in current U.S. dollars and include SITC Divisions 0, 1, 2 (except Section 28), and 4. Source of data: (2, 10, 11, 13, 15, 16, 17, 38, 41, 42, 55).
[2] See table 1, footnote 2, for countries included in each region.
[3] Estimated on basis of percent of total trade.

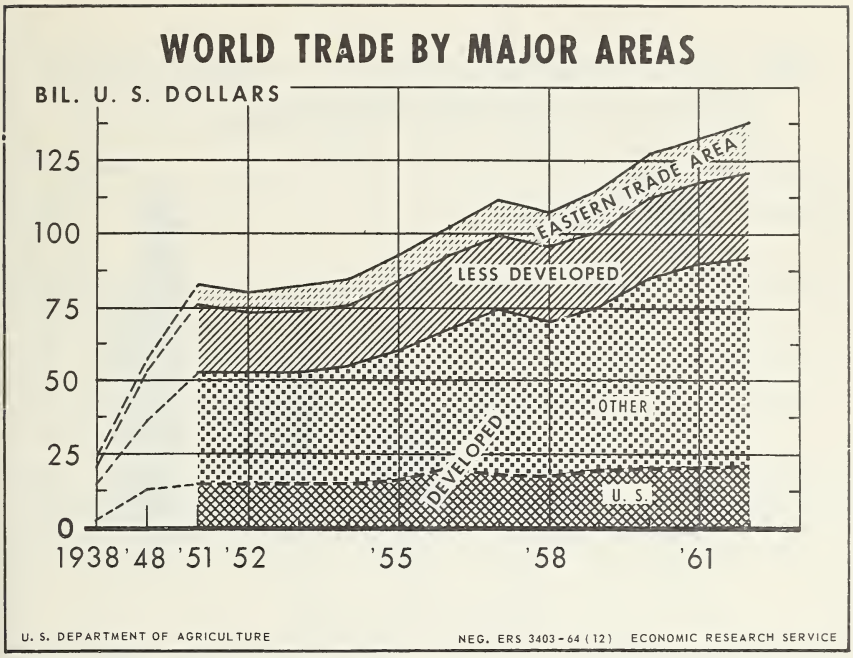

Figure 3

TABLE 6.--Relation of income and trade for developed and less-developed countries in 1959-61[1]

Countries	Per capita income	All exports per capita	All imports per capita	Agricultural trade	
				Exports per capita	Imports per capita
	Dollars				
Developed[2]	700	126	133	31	48
Less developed.....	111	21	22	11	5

[1] Based on data in tables 3, 4, and 5.
[2] Excludes the United States.

In 1959-61, the developed countries (excluding the United States), with an annual average income of $700 per capita, exported $126 and imported $133 worth of all goods and services per capita. In contrast, the less-developed countries, with an average annual income of only $111 per capita, averaged about $21 of exports and imports per capita during this period. The value of agricultural exports was $31, or only 23 percent of total exports, for the developed countries and $11, or 52 percent, for the less-developed countries. At this time, the developed countries imported about $48 per capita of agricultural products; the less-developed countries averaged only $5 of agricultural imports per capita.

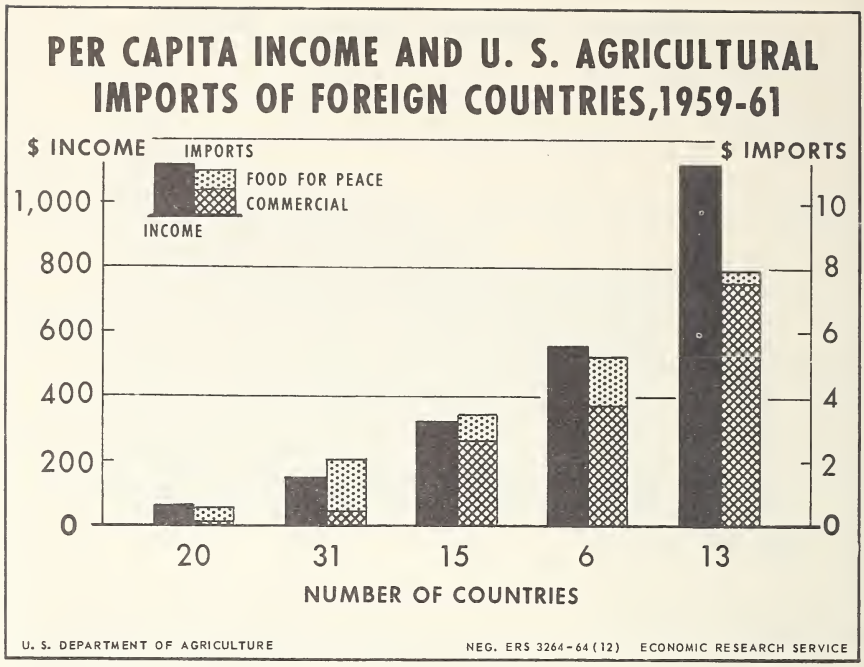

Figure 4

Per capita income, exports, and imports of all products were about 6 times larger for the developed countries (excluding the United States) than for the less-developed countries in 1959-61. Agricultural exports in the developed countries were only 3 times larger, but agricultural imports were about 9 times larger than they were for the less-developed in 1959-61. The importance of agricultural exports in the total trade of less-developed countries is emphasized by these comparisons. Agricultural exports in these countries in 1959-61 were more than half of all exports. In contrast, agricultural exports were only about a fourth of all exports in the developed countries (table 7).

The proportionate decline in agricultural exports during development is in relative and not in absolute terms. That is, the volume of nonagricultural exports grows faster than agricultural exports during development, thereby causing agriculture's proportion of total exports to decline (fig. 5).

The high dependency of the less-developed countries on agricultural exports is indicated by the high proportion of total exports (table 7) and of agricultural exports per capita at this low level of income (table 6). These data suggest that agricultural imports would increase with higher levels of income and economic development. Low levels of agricultural imports per capita reflect the

TABLE 7.--Agricultural trade as a percentage of total trade, by major regions, 1938, 1953-55, and 1959-61[1]

Region [2]	1938		1953-55		1959-61	
	Exports	Imports	Exports	Imports	Exports	Imports
	Percent					
Developed.....	35	46	28	41	24	34
Less developed.....	53	20	57	24	54	23
Eastern Trade Area.	30	38	[3] 29	[3] 30	27	29
World.....	39	39	35	35	31	31

[1] Based on data in tables 4 and 5.
[2] For countries in regions, see table 1, footnote 2.
[3] Estimated on basis of percent of total trade.

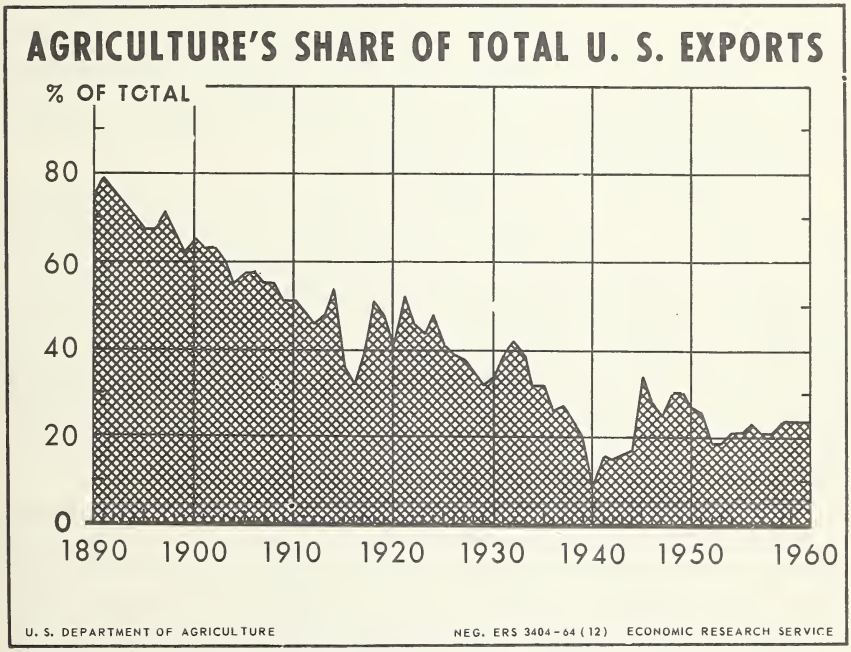

Figure 5

greater use of foreign exchange earnings for capital imports which are needed to finance industrial and general economic development.

Generally, the countries that have increased imports most rapidly since 1938 are those whose incomes have developed most rapidly. The relationships of income and imports are shown in table 8.

The general relationship between levels of economic development and total trade is also reflected in the data on per capita income and imports for 12 major trading areas or countries, for

TABLE 8.--Relation of growth in income to growth in total and agricultural imports in developed and less-developed countries, 1938 to 1959-61[1]

Countries	Annual rate of growth		
	Per capita income	Total imports	Agricultural imports
	Percent		
Developed[2]	2.0	3.0	1.5
Less developed[3]	2.3	3.6	4.3

[1] Income and trade data were expressed in 1953 U.S. dollars.
[2] Excluding the United States.
[3] Excluding the Eastern Trade Area countries.

1938 and 1959-61 (tables 9 and 10). A breakdown of the trade and income data of the developed countries shows that in 1959-61 Canada, EFTA, and EEC, in that order, had the highest levels of per capita income as well as imports per capita--both total and agricultural. These relationships were not as clear for 1938, since the income differentials for these groups of countries were not as large as in the more recent period.

The lower level of imports of both total and agricultural products by the United States in both time periods appears to be an exception to the general case, even though the level of income per capita is higher than in other developed countries. The larger geographic and economic size of the United States, along with its diversity of natural resources and production capabilities, make this country less dependent on trade for its diversified demand than other developed countries with less resources. These non-income factors may explain in large part the lower levels of U.S. imports per capita than for other developed countries.

The effect of population and geographic size on the import patterns is important, but this analysis abstracts from this consideration. Although the data on imports and income of the United States are listed in tables 9 and 10, they are not used in this analysis since the primary concern here is with countries importing from the United States. Furthermore, as we shall see later on, an analysis of individual country data indicates that the scatter of country observations follows a rather uniform pattern, with the United States deviating rather sharply from this pattern. This deviation suggests that very large and very populous countries may be exceptions to the general case.[6]

[6] There is evidence, based on limited income and trade data, that the USSR and China, India, Pakistan, and Indonesia--the other largest countries in terms of population--may also be exceptions. Due to their lower levels of income, however, their divergences from the general pattern are less pronounced than for the United States.

TABLE 9.--Income and imports per capita: Total and agricultural value by major origin of imports, 1938[1]

Region[2]	Income per capita	Imports per capita from--		Agricultural imports per capita from--	
		All countries	U.S. share	All countries	U.S. share
	----------	----------	Dollars	----------	----------
Developed:[3]					
Western Europe					
European Economic Community	293	30.96	2.43	15.16	.74
European Free Trade Association	390	68.39	10.12	39.28	3.09
Other	96	11.59	.87	3.76	.34
North America					
Canada	383	60.87	46.46	14.70	6.68
United States	563	17.13	---	8.50	---
Other developed					
Japan	93	13.96	3.27	3.51	.63
Australia, New Zealand, and Republic of South Africa	290	54.55	10.11	13.64	.65
Total	246	33.36	5.27	15.73	1.25
Less developed:					
Africa	72	7.96	.71	1.85	.03
Asia	35	2.51	.33	1.15	.07
Latin America	90	10.30	4.40	2.61	.49
Total	48	5.36	.97	1.48	.12
Eastern Trade:					
Union of Soviet Socialist Republics	93	1.46	.35	.53	.02
Eastern Europe	109	9.45	.28	5.09	.16
China and others	17	1.33	.20	.14	.04
Total	46	2.25	.24	.78	.05
World total	106	10.31	1.38	4.02	.37

[1] Value data are U.S. dollars. Source of data: (2, 10, 11, 24, 38, 41, 42, 43, 44, 45, 47, 48, 49, 50, 51, 55).

[2] European Economic Community (EEC) includes Belgium, Luxembourg, France, Italy, West Germany, and Netherlands. European Free Trade Association (EFTA) includes United Kingdom, Austria, Denmark, Norway, Portugal, Sweden, and Switzerland. Other Western Europe (OWE) includes Finland, Greece, Iceland, Ireland, Spain, Turkey and Yugoslavia. Africa Includes all countries except Republic of South Africa. Asia includes all countries except Japan, China Mainland, North Korea, North Vietnam, and Mongolia. Eastern Europe includes Albania, Bulgaria, Czechoslovakia, Hungary, Poland, East Germany, and Rumania. China and others include North Korea, North Vietnam, and Mongolia.

[3] Information on income and trade excludes the United States in the summary for developed countries.

As a group, the developed countries (excluding the United States) had an average per capita income in 1959-61 of $700, or about 7 times that of less-developed countries ($111). Total imports per capita by the developed countries were about 6 times larger, but agricultural imports were about 9.5 times larger than in the less-developed countries. In 1938, incomes were about 5 times

TABLE 10.--Income and imports per capita: Total and agricultural value by major importing region and origin of imports, 1959-61 average[1]

Region[2]	Income per capita	All imports per capita from--		Agricultural imports per capita from--		
		All countries	U.S. share	All countries	Total U.S. share[3]	Commercial U.S. share
	Dollars					
Developed:[4]						
Western Europe						
European Economic Community	855	158.81	18.34	57.89	6.27	5.78
European Free Trade Association	1,019	229.02	21.37	87.63	7.53	6.90
Other	281	48.54	6.83	10.91	3.28	.71
North America						
Canada	1,558	296.26	202.40	140.11	24.35	24.30
United States	2,289	83.45	---	30.51	---	---
Other developed						
Japan	347	41.45	14.27	16.34	4.91	4.69
Australia, New Zealand, and Republic of South Africa	751	140.81	22.00	46.80	1.94	1.87
Total	700	132.54	22.88	48.13	6.09	5.27
Less developed						
Africa	107	33.83	3.31	6.11	.86	.19
Asia	110	15.61	2.79	2.93	.99	.28
Latin America	282	37.04	16.18	6.37	2.33	1.74
Total	111	22.38	5.10	5.08	1.19	.51
Eastern Trade:						
Union of Soviet Socialist Republics	648	24.79	.11	5.69	.03	.03
Eastern Europe	392	76.98	1.10	29.34	.94	.15
China and others	74	2.84	.00	.32	.00	.00
Total	225	14.79	.14	4.38	.10	.08
World total	380	42.44	7.06	13.02	1.67	1.21

[1] Value data are U.S. dollars. Source of data: (10, 11, 13, 15, 16, 17, 24, 47, 48, 50, 51, 55).
[2] See table 9, footnote 2.
[3] Total agricultural imports include commercial shipments as well as all shipments under special U.S. Government export programs.
[4] Information on income and trade excludes the United States in the summary for developed countries.

larger, total imports about 6 times larger, and agricultural imports about 10.6 times larger in the developed countries. By comparison, in 1959-61 the developed countries imported only 4.5 times more of all products from the United States than the less-developed countries and 5 times more of all agricultural products. Imports of commercial agricultural products by the developed countries in 1959-61, however, were about 10 times larger than for the less-developed countries. In 1938, total imports from the

United States by the developed countries were 5.4 times larger, and commercial agricultural imports were 10.4 times larger than for the less-developed countries. These figures indicate relatively little change over the past 2 decades.

These relationships clearly illustrate the importance of the developed countries as market outlets for U.S. and world products, especially agricultural products. The low level of imports from the United States by the Eastern Trade Area countries in 1959-61 reflects the importance of political restraints on trade. Current shipments of agricultural products to these countries, however, suggest the growing demand for increased trade with the United States and removal of these trade-reducing factors.

The nature and extent to which the United States has shared in the increased world demand for imports have varied between countries. But generally, high income countries have increased their total trade with the United States in about the same proportion as they did from all countries since 1938. Consequently, the U.S. share of total imports by developed countries has remained rather constant, increasing from 15.7 to 17.3 percent (table 11).

Since 1938, the developed countries have increased their agricultural imports from the United States more than from all other countries. Consequently, the U.S. share of the developed countries' agricultural imports has increased during the past 2 decades from 8 to more than 12 percent. In the less-developed countries, the United States increased its share of both total and agricultural imports of these countries. Therefore, the percentage increases in imports from the United States were significantly higher in the less-developed than in the developed countries over the past 2 decades (table 11).

Total Imports Per Capita From the United States

Imports of all goods and services per capita from the United States by all major economic trading areas except the Eastern Trade Area increased since 1938 (tables 9 and 10). Since 1938, U.S. exports to the developed and less-developed areas increased

Table 11.--U.S. share of total and agricultural imports, developed and less-developed countries, 1938 and 1959-61

Type of imports	Developed		Less developed	
	1938	1959-61	1938	1959-61
	Percent			
Total imports	15.7	17.3	18.1	22.8
Agricultural imports	7.9	12.6	8.1	23.4

about 3 and 4 times, respectively. During the same time, the absolute value of the difference in per capita imports between these 2 groups of countries actually increased. For example, in 1938 the value of imports per capita was $5.27 for the developed countries and $0.97 for the less-developed countries. By 1959-61, imports per capita had increased to $22.88 and $5.10 for the developed and less-developed countries, respectively. The value of the absolute difference increased from $4.30 in 1938 to $17.80 in 1959-61. These relationships result from the fact that, like the income gap, the import gap is increasing between the economically developed and less-developed countries.

Such developed countries as Canada, Oceania, the United Kingdom, and the Benelux countries have consistently imported more per capita from the United States than have the other developed countries. Canada is by far the most dramatic example. In 1938, the value of Canada's imports per capita from the United States was almost 9 times greater than the average for all developed countries ($46.46 vs. $5.27). In 1959-61, the value of Canada's imports per capita from the United States was still 9 times greater ($202.40 vs. $22.88). During the past 2 decades, imports from the United States have represented a little more than 70 percent of Canada's imports from all sources. Since 1938, U.S. exports as a percentage of all Canadian imports have gradually deceased from 76 to 68 percent (table 12). For the developed countries as a group, U.S. exports as a percent of all imports have remained fairly stable, increasing slightly from 16 to 17 percent from 1938 to 1959-61.

TABLE 12.--U.S. share of total and of agricultural imports, by major economic areas, 1938 1953-55, 1956-58, and 1959-61[1]

Economic areas	Total imports				Total agricultural imports			
	1938	1953-1955	1956-1958	1959-1961	1938	1953-1955	1956-1958	1959-1961
	Percent							
Developed	15.7	17.4	19.0	17.3	7.9	11.8	13.6	12.6
Western Europe	11.1	10.2	12.0	10.9	6.5	9.7	12.0	10.6
EEC	7.8	11.2	13.1	11.5	4.9	9.8	11.2	10.8
EFTA	14.8	8.3	9.7	9.3	7.5	8.0	9.6	8.6
Other Western Europe	7.5	14.3	17.0	14.1	9.5	25.5	35.1	30.1
Canada	76.3	75.2	73.1	68.3	48.9	15.3	16.3	17.3
Australia, New Zealand, and So. Africa	18.5	13.5	13.7	15.6	10.3	6.9	6.3	4.1
Japan	23.4	31.9	35.1	34.4	15.9	27.3	26.1	30.0
Less developed	18.1	24.0	25.7	22.8	8.1	14.1	18.7	23.4
Africa	8.9	9.5	9.1	9.8	1.7	(2)	(2)	14.1
Latin America	42.7	47.2	50.8	43.7	21.5	39.5	46.4	36.6
Asia	13.1	16.6	17.4	17.9	5.7	(2)	(2)	38.8
Eastern Trade	10.7	(*)	1.0	.9	6.4	(*)	2.0	2.3
USSR	24.0	(*)	(*)	.6	3.8	(*)	(*)	.5
Eastern Europe	3.0	(*)	1.3	1.4	3.1	(*)	(2)	3.2
Mainland China, et al	15.0	(*)	(*)	(*)	28.6	(*)	(*)	(*)

[1] Based on trade data and sources shown in tables 4, 5, 9, and 10, and (53).
[2] Not available.

*Less than .05 of 1 percent.

Among the less-developed countries, the Latin American countries have represented one of the best market outlets for U.S. exports in the less-developed area. As a group, they have had the highest level of imports per capita from the United States. In 1938, U.S. exports to these countries accounted for 43 percent of all their imports. This percentage increased to 51 percent in 1956-58 before declining to 44 percent in 1959-61.

No doubt these high per capita imports by Latin American countries are related to the fact that the United States has consistently purchased a large share of their exports. The United States has consistently been the best market outlet for Latin American products such as coffee, sugar, fruits, tin, and petroleum. Historical trade relations between the United States and Latin American countries have strongly influenced the import trade of those countries. However, because of rapid population growth in recent years, lack of major progress in economic growth, and deteriorating terms of trade since 1956-58, these countries have sharply reduced their total and per capital imports from all sources and the United States.[7] The United States should be vastly concerned with economic growth in Latin America, especially since these countries have represented about 25 percent of the total market outlet for U.S. exports.

Agricultural Imports Per Capita from the United States

The value of agricultural imports per capita from the United States by the developed countries has increased about 4 times from 1938 to 1959-61. Imports per capita increased about 9 times for less-developed countries during this period. This increase in agricultural imports per capita by the less-developed countries exceeded the rate of increase for all imports during this period (tables 9 and 10).

The countries in the European Free Trade Area (EFTA) have consistently imported more agricultural products per capita than have all other developed countries except Canada. The high value of agricultural imports per capita for Canada ($24.35 in 1959-61) is one of the exceptions to the general case for developed countries. Canada has consistently imported more U.S. farm products per

[7] The annual rate of growth of exports of the Latin American countries as a group was the lowest (2 percent) of all nonindustrial countries from 1953-55 to 1962. The next lowest growth rate was 2.3 percent for Southeast Asia. This slow growth in exports has directly affected the growth in imports of those countries (17, p. 9).

capita than all other developed countries since 1938. However, in recent years the Netherlands have rapidly increased their agricultural imports per capita from the United States and exceeded the value for Canada by about $4 in 1959-61. In fact, the value of per capita imports for the Common Market countries (EEC) would only be about 60 percent of the level of $6.27 in 1959-61 without the Netherlands. The Netherlands have steadily increased their imports per capita from the United States since 1938 when the value of agricultural imports per capita from the United States was only $3.71. It increased to about $13 in the immediate postwar years before increasing rapidly to the current level of $28.

The major areas in which the U.S. share of total imports has improved most includes the EEC, the 7 countries in Western Europe not in EFTA, and Japan. The U.S. share of total agricultural imports has improved slightly in EFTA, but the U.S. share in Australia, New Zealand, South Africa, and Canada has declined since 1938. From 1938 to 1959-61, the U.S. share of total Canadian agricultural imports actually decreased from 49 to about 17 percent. The U.S. share of the combined agricultural imports of Australia, New Zealand, and South Africa declined during this period from 10 to 4 percent. One reason for the overall increase in the U.S. share of all agricultural imports by the developed countries, in spite of the decline in Canada, Australia, New Zealand, and South Africa, has been the shift in the direction of U.S. agricultural exports within the developed countries. In 1938, the EEC accounted for about 18 percent of all U.S. agricultural exports; these countries accounted for 23 percent in 1959-61. The EEC, together with other countries that have increased imports per capita from the United States most rapidly (Japan and Other Western European countries), increased the share of total U.S. agricultural exports from 28 to 38 percent from 1938 to 1959-61. These shifts in the direction of U.S. agricultural trade are associated with a more rapid rate of economic growth in EEC, Japan, etc., than in the other developed countries. These more rapidly growing countries in the developed group also increased their share of total U.S. exports from 21 to 26 percent during this period. Thus, expansion of U.S. exports, agricultural and total, is greatest to the rapidly growing countries. And, as we shall see later, these rapidly growing countries, whether developed or less-developed, have the highest propensity to import.

Although the actual value of agricultural imports per capita from the United States in the less-developed countries is small relative to that of the developed countries, the increase in imports per capita since 1938 of these countries has been consistent with

their levels of and growth in per capita incomes. For the less-developed countries as a group, the value of per capita imports increased from $0.12 to $1.19 from 1938 to 1959-61, or 892 percent. During this period, these countries increased their imports per capita of agricultural commodities from all sources from $1.48 to $5.08, or by 243 percent. Consequently, during this period the U.S. share of total agricultural imports of the less-developed countries increased from 8 to 23 percent (table 12).

The above trade and income data--whether with the United States or all countries--suggest that a high degree of correlation exists between the level of income and trade, and that imports are related to income. To quantify this relationship between economic growth and demand for imports, the concept of elasticity of imports is used in the following analysis.[8]

Elasticity of Imports with Respect to Income

One of the long-run effects of increased economic growth and incomes is to alter the demand and consumption of agricultural and other products. It is logical, therefore, to expect that income changes would also affect the long-run demand for imports. In the absence of trade policies restricting imports or an increase in domestic supplies, an increase in the effective demand for agricultural and other products will be reflected in increased imports. The nature and extent to which imports will be expanded with economic growth in each country will depend upon such factors as the (1) rate of growth in income per capita, (2) income elasticity of demand for the products entering trade, (3) domestic supply of agricultural and other commodities, (4) balance-of-payments, (5) foreign exchange reserves, and (6) trade and other Governmental policies affecting imports. The population effect on trade is additive and can be treated separately. (Both the population and income effects are considered in the projections discussed later.) In spite of all these individual country conditions affecting trade, it is assumed here that if a general increase in the effective demand for agricultural and other products is not met domestically, it will spill over national boundaries and increase the total demand for imports. Likewise, a decrease in per capita incomes and, hence, a decrease in the effective demand for products will be reflected in a reduction in the demand for imports. In other words, it is the income effect on the demand for imports that is central to an analysis of the effects of economic growth on international trade.

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[8] This concept is sometimes referred to as the income elasticity of imports, or the income elasticity of demand for imports.

Average Elasticity of Total Imports

The average elasticity of imports as measured by arc elasticity for all goods and services by the developed countries from all countries is estimated to be 1.24; it is 1.30 for imports from the United States.[9] In other words, total imports from all countries by the developed countries increased 12.4 percent for each 10-percent increase in per capita incomes from 1938 to 1959-61. During this period, total imports from the United States grew about 13 percent for each 10-percent increase in incomes per capita. Estimates of the average import elasticity for all imports from all countries and the United States during the 1950-1961 period are somewhat larger (1.42 and 1.38, respectively). These estimates indicate a more rapid rate of change in imports from the world than from the United States in recent years with increased incomes, as well as increased values of the import elasticities. These relationships for the period 1938 to 1959-61 are shown in table 13 and graphically in figure 6.

TABLE 13.-- Estimates of the average elasticity of imports, total and agricultural, by developed and less-developed countries, 1938 to 1959-61 and 1950-61[1]

Type and origin of imports	Estimated elasticity coefficients of imports by--			
	Developed countries		Less-developed countries	
	1938 to 1959-61[2]	1950-61[3]	1938 to 1959-61[2]	1950-61[3]
Total imports				
All countries.....	1.24	1.42	1.55	1.55
United States.....	1.30	1.38	1.72	1.20
Agricultural imports				
All countries.....	1.06	.93	1.39	.52
United States				
Total.....	1.37	1.40	2.06	2.10
Commercial[4].....	1.28	[5] 1.04	1.56	[5] 1.19

[1] Income and imports of the United States and the Eastern Trade Area countries are not included in the calculations of these coefficients.
[2] Based on the data in tables 9 and 10.
[3] Based on the data from Christensen and Mackie (7).
[4] Excluding special shipments under P.L. 480 in 1959-61.
[5] Based on U.S. agricultural export data by countries for fiscal 1954-55 to 1961-62.

[9] In this analysis, actual values of income and trade data are used. Analysis using deflated prices indicates that available deflators are inadequate, but the general effect might be to increase the estimates of import elasticities. A more detailed discussion of this point is given in the appendix.

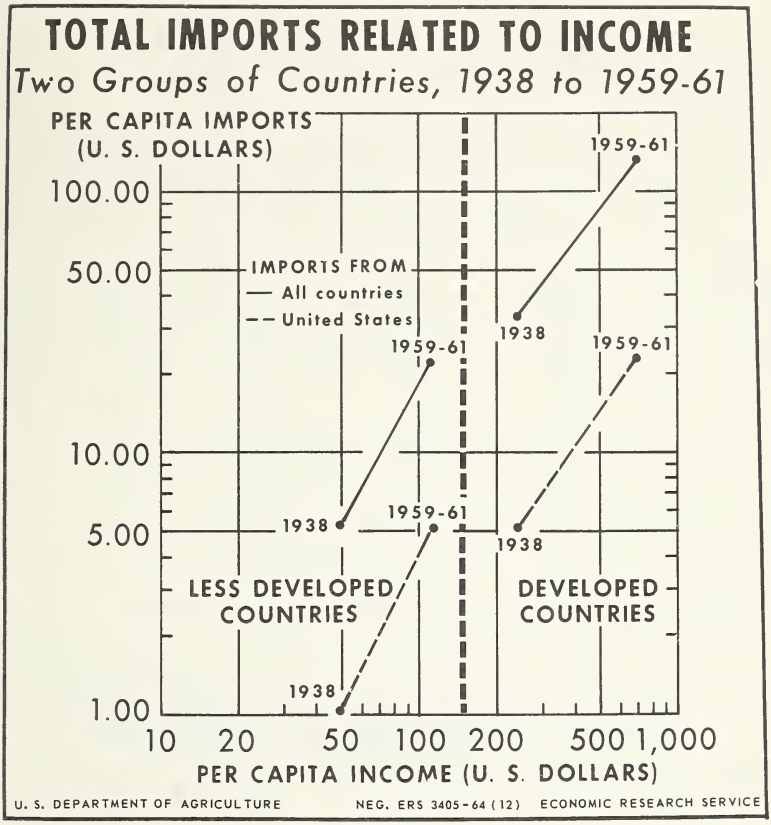

Figure 6

These data suggest that economic growth in the developed countries has been beneficial to world and U.S. trade during the past 2 decades. From 1938 to about the mid-1950's, U.S. exports grew faster than world trade or exports of the developed countries (table 14). However, since the mid-1950's expansion in U.S. exports has lagged behind exports of the world. Consequently, the U.S. share of world exports has declined from a high of 19 percent in 1952 and 1953 to 16 percent in 1961. Estimates of the import elasticity for all products from the United States by the developed and less-developed countries were higher than from all countries during the 1950's. This suggests that the more rapid rate of growth in world trade during this past decade represented the world's "catching up" with the higher growth rates in U.S. exports in the early postwar years (table 14 and fig. 7). During the latter part of this decade, the United States had a slower rate of

TABLE 14.--Changes in exports, including percentage share of world exports of the United States and developed countries, compared with changes in world trade, 1938, 1948, and 1951-61[1]

Year	World	Index of exports		Share of world exports[3]	
		Developed[2]	United States	Developed[2]	United States
	Index: 1953 = 100			Percent	
1938.....	73	66	41	65	[4] 13 (11)
1948.....	71	66	81	64	[4] 22 (24)
1951.....	95	95	96	63	18
1952.....	94	94	95	65	19
1953.....	100	100	100	65	19
1954.....	105	106	97	64	17
1955.....	114	115	99	64	17
1956.....	124	127	117	66	18
1957.....	131	136	123	67	19
1958.....	129	132	107	66	17
1959.....	139	143	104	65	15
1960.....	154	161	121	67	16
1961.....	159	163	121	67	16

[1] United Nations (50).
[2] For countries included in this region, see table 1, footnote 2.
[3] Based on value of world exports.
[4] Excluding the Eastern Trade Area.

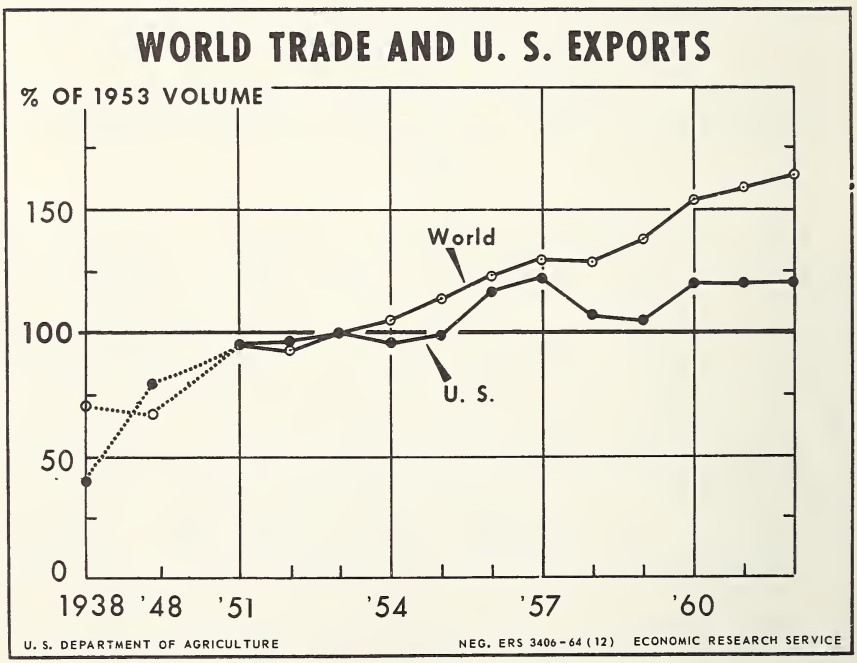

Figure 7

economic expansion than did the other developed countries, especially Western Europe.[10]

There have been some exceptions to the above import pattern within the developed countries. These exceptions are Canada, Australia, New Zealand, South Africa, and EFTA. Estimates of the import elasticities for these countries are generally lower for U.S. imports than for imports from all countries (table 15). Since the United Kingdom looms so large in the total trade of EFTA, lower elasticities of imports from the United States for this group of countries may have been due to the Commonwealth trade policies which have historically emphasized intracommonwealth trade. These data further suggest that the lower elasticity of imports from the United States by EFTA may have been due

TABLE 15.--Estimates of average elasticity of imports, total and agricultural, by region or country, 1938 to 1959-61[1]

Region or country[2]	Total imports from--		Agricultural imports from--		
	All countries	United States	All countries	United States	
				Total	Commercial[3]
Developed					
European Economic Community (EEC).....	1.38	1.56	1.19	1.61	1.58
European Free Trade Association (EFTA)....	1.21	.80	.85	.94	.85
Other Western Europe (OWE).....	1.25	1.58	.99	1.66	.72
Canada.....	1.09	1.04	1.34	.94	.94
Japan.....	.85	1.09	1.12	1.34	1.32
Australia, New Zealand, and Repub. of South Africa.....	1.00	.84	1.24	1.12	1.09
Total[4].....	1.24	1.30	1.06	1.37	1.28
Less developed					
Africa.....	3.17	3.31	2.74	4.77	3.72
Asia.....	1.40	1.52	.84	1.68	.89
Latin America.....	1.09	1.11	.81	1.26	1.09
Total.....	1.55	1.72	1.39	2.06	1.56
All countries.....	1.08	1.19	.94	1.13	.94

[1] Calculations based on data in tables 9 and 10.
[2] For countries included in regions, see footnotes in tables 9 and 10.
[3] Excluding special shipments under P.L. 480 in 1959.
[4] Total for the developed countries excludes the United States.

[10] Economic conditions in the developed world outside the United States have improved rapidly since 1948, partly as a result of U.S. foreign aid in its many forms. In fact, economic conditions there have improved more rapidly than in the United States itself, which has been plagued by 3 recessions (1948-49, 1953-54, and 1957-58) while other countries have been able to steer a more even course.

to the relatively higher level of imports per capita from the United States in 1938 than was true for the other developed countries. Consequently, the rate of expansion in imports per capita from the United States slowed down in the recent decade to levels more consistent with their overall ability to import from all countries.

For the less-developed countries as a group, since 1938 the rate of expansion in imports per capita from the United States associated with changes in income has been higher (1.72) than for imports from all countries (1.55). The elasticity of total imports from the United States is also higher than that observed for the developed countries. However, in contrast to the trends for the developed countries, the elasticity of total imports from the United States by the less-developed countries appears to have increased more slowly during the 1950's than the 1940's (table 13). On the other hand, elasticity of total imports by the less-developed group from all countries was about the same for both periods. Consequently, the percentage share of U.S. imports of total country imports by the less-developed countries declined from about 26 percent during the 1950's to 23 percent in 1959-61 (table 12).

Tentative estimates of import elasticities for the Eastern Trade Area countries (based on limited information) are much greater from all countries than from the United States. Exclusion of the East European countries makes the import elasticities negative. These data are not too meaningful in the present analysis because of Governmental policies restricting trade with the centrally planned countries. These data do emphasize, however, the effect that trade and Government policies might have on the patterns of international trade.

Average Elasticity of Agricultural Imports

Unlike the relationship between total imports and income, the relationship between income and agricultural imports from the United States by the developed and less-developed countries is quite different from the elasticity of imports for agricultural imports from all countries (table 15). For example, the elasticity of agricultural imports from all countries by developed countries from 1938 to 1959-61 was 1.06; it was 1.37 for total agricultural imports, but 1.28 for commercial imports from the United States. The elasticities for agricultural imports by the less-developed group were 1.39, 2.06, and 1.56 from all countries and the United States, total and commercial, respectively.

In all the developed countries except Canada, Australia, New Zealand, and South Africa, changes in agricultural imports from the United States associated with changes in income have been

greater than from all countries. This phenomenon is also true for total trade. Here again, the effect of Commonwealth policies on trade is evident. In addition, these countries are large exporters of temperate zone agricultural products which compete with U.S. agricultural exports. If commercial imports only are considered, the elasticities for EFTA and other Western European countries (OWE) are equal to or less than the elasticity of imports from the world.

The average elasticity of agricultural imports from all countries by the developed countries has not changed significantly in recent years. That is, a 10-percent change in income for the period 1938 to 1959-61 was associated with a 10.6-percent increase in agricultural imports, and with a 9.3-percent increase in total imports during 1950-61 (table 13). These data suggest that the elasticity of imports for agricultural products in the developed countries has declined slightly in recent years and that future increases in agricultural imports will be less than the growth in income. Under these conditions, agricultural imports will continue to be a declining proportion of total imports.

Similarly, the relative decline in the average elasticity of commercial agricultural imports from the United States from 1.28 for the whole period to 1.04 during 1950-61 suggests that in recent years the economic recovery of Western Europe has been accompanied by a slackening in the growth of commercial agricultural imports. With economic recovery, agricultural production in Western Europe has increased and has enabled these countries to export more of their own agricultural products. Economic recovery has also cut back on their abnormally high levels of agricultural imports from the United States in the early 1950's that were due, in part, to the economic aid given by this country under the Marshall Plan and P.L. 480 programs. On the other hand, if the average elasticity for total agricultural imports is considered, there appears to have been little or no change in the magnitude of the import elasticity in recent years. However, commercial imports are of concern here as they are more indicative of the basic trends and changes in trade that have occurred with economic growth.

For the less-developed countries as a group, the import elasticity of U.S. agricultural products has been significantly greater than for world agricultural products. Comparisons of agricultural imports by the less-developed countries from the world and the United States, except in the aggregate, are more tenuous than for the developed countries because of the paucity and incompleteness of trade data, especially in 1938. However, in spite of this weakness of data, the general relationships shown in table 13 and figure 8 do reveal something about the nature of the

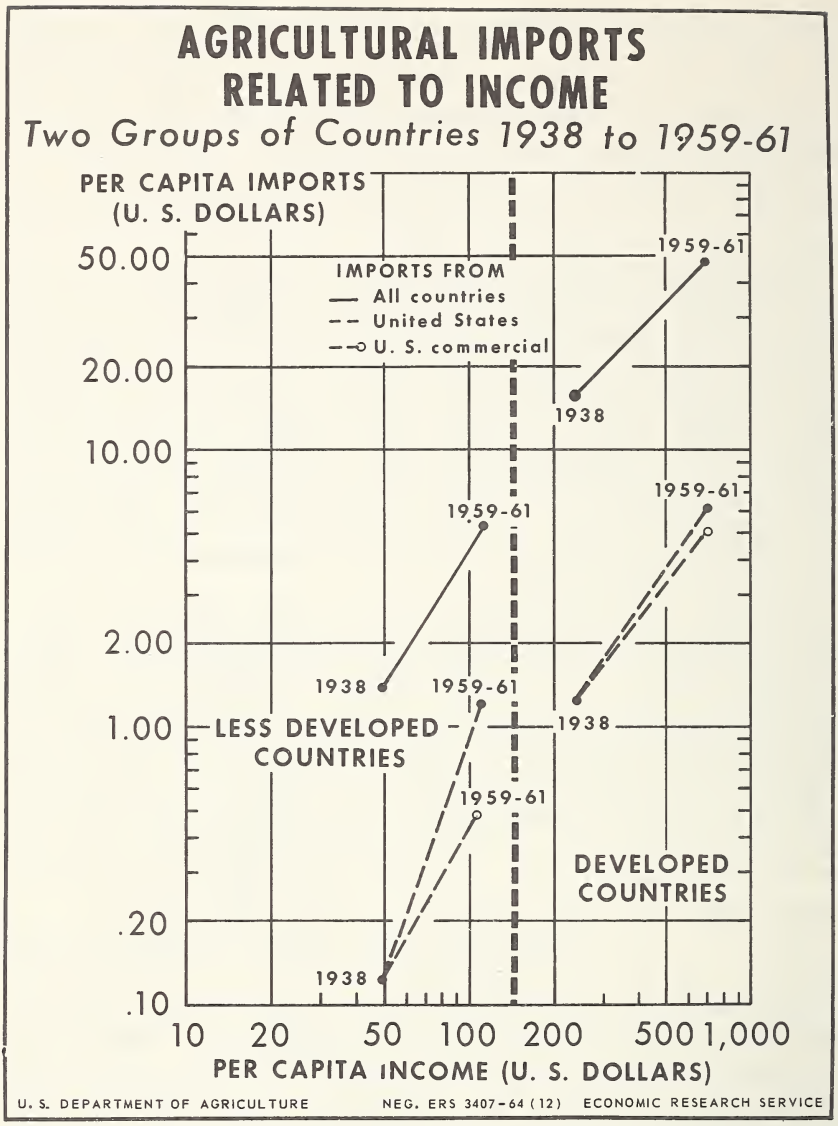

Figure 8

trade-development relationships for agricultural imports in these countries. The average import elasticity for total U.S. agricultural products (2.06) is significantly higher than that for world agricultural products (1.39). The elasticity of agricultural imports from the United States is still higher even if only commercial imports (1.56) are considered, i.e., dollar purchases or total agricultural imports minus P.L. 480 shipments. Thus the elasticity of agricultural imports in the less-developed countries, whether

from the world or the United States, is significantly greater than 1.0. This suggests that continued high levels of agricultural imports will be of major importance to countries in the early stages of development.

Changes in agricultural imports from the United States associated with changes in incomes in the less-developed countries were much greater (2.10) than for all other countries (.52) during this past decade (table 13). They were greatest in Africa, and, to a lesser extent, in Latin America and Asia. These estimates of total agricultural imports for these 3 regions suggest that trade between these countries and the United States was relatively more intensive during the 1950's than for the rest of the world. However, if only commercial imports are considered, the elasticity of imports from the United States falls to 1.19, or about the same as the elasticity for all imports (1.20) from the United States during 1950-61. The larger elasticity of total agricultural imports from the United States than either commercial imports or world agricultural imports suggests that the effect of P.L. 480 has been to increase agricultural imports from the United States much faster than growth in income in some of the less-developed countries (fig. 8).

Import Elasticities for 1938 and 1959-61

Analysis of the basic trade and income relationships for the 2 time periods, 1938 and 1959-61, for about 50 to 90 countries reveals a rather uniform picture for world trade, both total and agricultural. Changes in the basic income and trade relationships between the 2 periods are rather small, as shown by the import elasticities in table 16. Changes in total imports from the United States by foreign countries also exhibited rather strong tendencies to remain stable over time for given changes in incomes. The constancy of these relationships is also supported by the average elasticity as shown in table 13.

Imports from the United States (like imports from all other countries) by countries experiencing economic growth would have increased about 9 percent for each 10-percent increase in income in 1938. In 1959-61, imports would have increased faster than incomes as indicated by the elasticities of slightly more than 1.0 (1.05 and 1.07 for world and U.S. imports, respectively). These relationships are shown graphically for about 70 to 90 countries in 1959-61 in figure 9.

These estimates of import elasticities were based on more countries in 1959-61 than in 1938.

TABLE 16.--Comparison of elasticities of imports and correlation coefficients for total and agricultural products from all countries and the United States, 1938 and 1959-61[1]

Type and origin of imports	Elasticity of imports (b)[2]		Correlation coefficients (R^2)	
	1938	1959-61	1938	1959-61
Total imports from:				
All countries				
57 countries	.96 (0.1119)	---	*57	---
87 countries	---	1.04 (0.0716)	---	*72
81 countries[3]	---	1.05 (0.0632)	---	*77
9 regions[4]	1.26 (0.0860)	1.01 (0.1163)	*97	*92
United States				
53 countries	.91 (0.2028)	---	*28	---
73 countries	---	1.07 (0.1050)	---	*59
9 regions[4]	1.55 (0.3326)	1.18 (0.2219)	*76	*80
Agricultural imports from:				
All countries				
41 countries	1.20 (0.1542)	---	*60	---
57 countries	---	1.19 (0.1076)	---	*70
9 regions[4]	1.32 (0.1230)	1.36 (0.1330)	*94	*94
United States, total				
51 countries	1.04 (0.2124)	---	*33	---
73 countries	---	.97 (0.1291)	---	*44
9 regions[4]	.80 (0.1086)	.95 (0.2058)	*45	*75
United States, commercial[5]				
51 countries	1.04 (0.2124)	---	*33	---
67 countries	---	1.32 (0.1511)	---	*54
9 regions[4]	.80 (0.1086)	1.53 (0.2388)	*45	*85

[1] Based on data in tables 25 and 26. Includes all countries with trade and income data.

[2] Figures in parentheses are standard errors of estimate obtained from the double logarithmic regression equation.

[3] Excludes the United States, USSR, Mainland China, India, Pakistan, and Indonesia--the 6 largest countries in terms of population.

[4] Based on data in tables 9 and 10. Income and imports of the United States, USSR, and Mainland China are not included in the calculation of these coefficients. The addition or deletion of Eastern European countries as a group does not alter the coefficients or the correlation results.

[5] Excludes special shipments under P.L. 480.

*Significant at the 95-percent level.

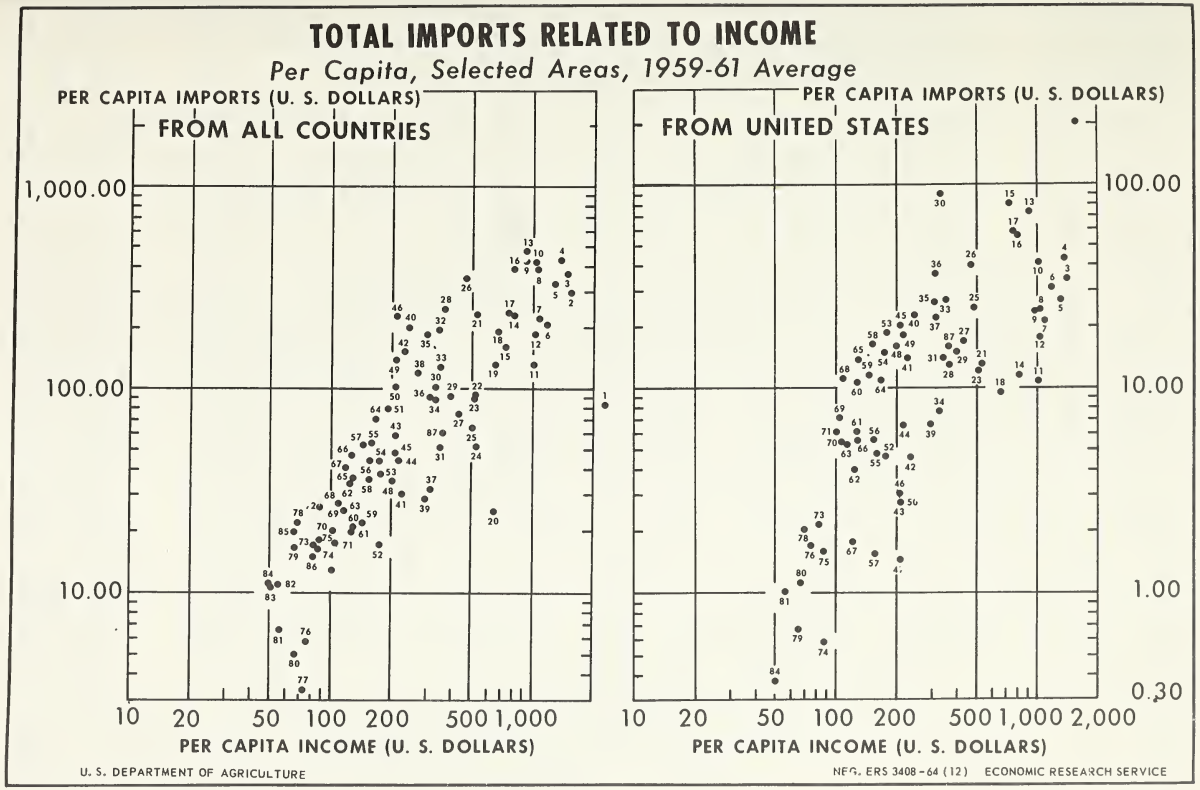
TOTAL IMPORTS RELATED TO INCOME
Per Capita, Selected Areas, 1959-61 Average
PER CAPITA IMPORTS (U. S. DOLLARS)
FROM ALL COUNTRIES
1,000.00
100.00
10.00
10 20 50 100 200 500 1,000
PER CAPITA INCOME (U. S. DOLLARS)
PER CAPITA IMPORTS (U. S. DOLLARS)
FROM UNITED STATES
100.00
10.00
1.00
0.30
10 20 50 100 200 500 1,000 2,000
PER CAPITA INCOME (U. S. DOLLARS)
U. S. DEPARTMENT OF AGRICULTURE
NEG. ERS 3408-64 (12) ECONOMIC RESEARCH SERVICE

Figure 9

Inclusion of more countries in 1938 could have altered these results. The lack of adequate trade data for more countries in 1938, however, prevents a more rigorous analysis of these relationships. Even so, the higher elasticities for the 1959-61 period are not inconsistent with the results observed in table 13. The average elasticities for both groups of countries suggest that some changes in the income-trade relationships have occurred over the past 2 decades, i.e., the import elasticities have increased. The results of time series and cross-sectional analyses are not exactly comparable and only the order of magnitude and directions of change are important in making these comparisons.[11]

The data in table 16 also suggest another point of interest here--the large increases in the correlation coefficients for the 1959-61 data over the 1938 data. The low correlation for total imports in 1938, especially from the United States, indicates that income has become a much more important factor in world trade in recent years. Income was also a major factor affecting trade in 1938, but its effect apparently was offset by other factors such as trade restrictions and other anti-free-trade policies that existed in many countries at that time. Lack of adequate data for a majority of countries prevents a more detailed analysis of these factors.

To circumvent some of the difficulties caused by lack of trade data, a more aggregative analysis was made. For example, the data were summarized into 9 major economic regions as shown in tables 9 and 10. The results of these analyses are shown in table 16 as regional estimates and graphically in figure 10. The purpose of these analyses was to determine if the various nonincome factors could be smoothed out by aggregation. The results for the 1959-61 period were generally very comparable to those obtained for all countries, but the elasticities for 1938 were considerably higher than those for all countries. The conclusions from these comparisons are that (1) aggregation of the data proves to be an unsatisfactory substitute for lack of data in 1938, but does serve as a satisfactory alternative method of analysis in 1959-61 when more information is available for a larger number of countries, and (2) the elasticity of total imports from all countries and the United States was probably between .9 and 1.0 in 1938 and between 1.0 and 1.10 in 1959-61.

Changes in agricultural imports associated with changes in income (elasticity of agricultural imports) for about 50 to 70 countries were higher in 1938 and 1959-61 than for total imports--regardless of whether the imports were from the United States or

[11]Movement through time up the income or development scale would necessarily involve changes in the structure of prices, demand, consumption, and trade. See the appendix for more detailed discussion on this subject.

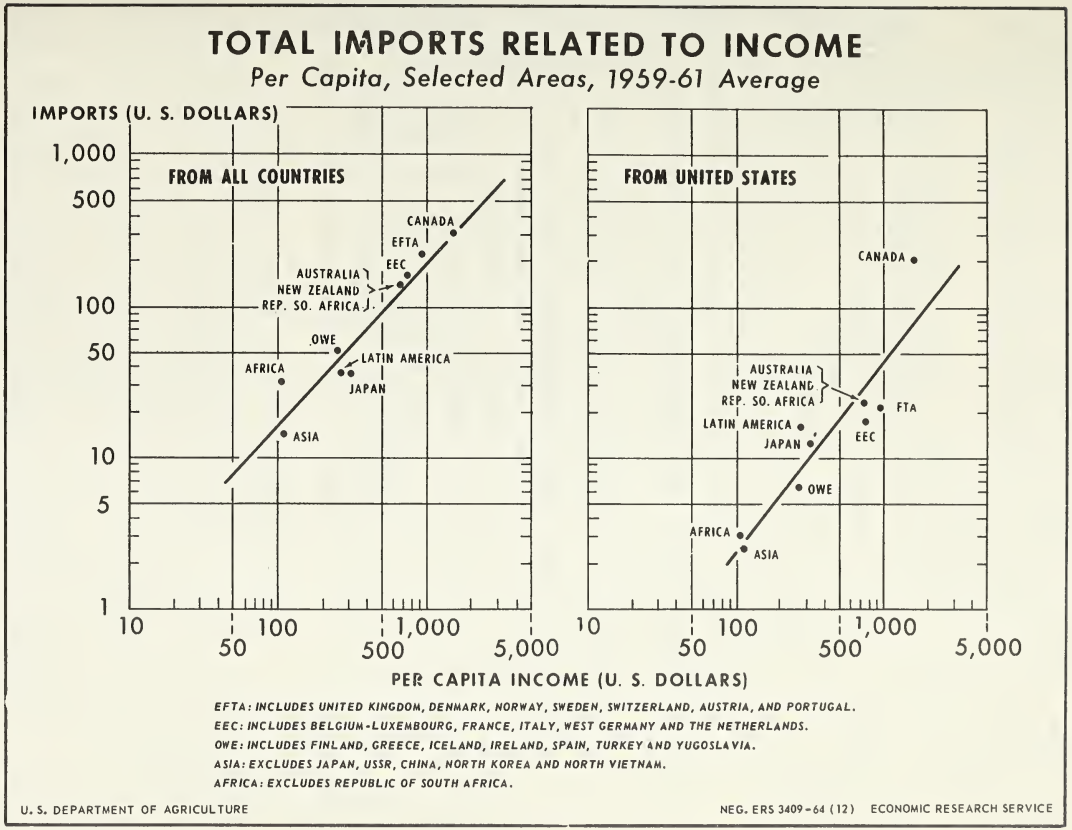
TOTAL IMPORTS RELATED TO INCOME
Per Capita, Selected Areas, 1959-61 Average
IMPORTS (U. S. DOLLARS)
FROM ALL COUNTRIES
1,000
500
100
50
10
5
1
CANADA
EFTA
EEC
AUSTRALIA
NEW ZEALAND
REP. SO. AFRICA
OWE
LATIN AMERICA
AFRICA
JAPAN
ASIA
10
50
100
500
1,000
5,000
FROM UNITED STATES
CANADA
AUSTRALIA
NEW ZEALAND
REP. SO. AFRICA
FTA
LATIN AMERICA
JAPAN
EEC
OWE
AFRICA
ASIA
10
50
100
500
1,000
5,000
PER CAPITA INCOME (U. S. DOLLARS)
EFTA: INCLUDES UNITED KINGDOM, DENMARK, NORWAY, SWEDEN, SWITZERLAND, AUSTRIA, AND PORTUGAL.
EEC: INCLUDES BELGIUM-LUXEMBOURG, FRANCE, ITALY, WEST GERMANY AND THE NETHERLANDS.
OWE: INCLUDES FINLAND, GREECE, ICELAND, IRELAND, SPAIN, TURKEY AND YUGOSLAVIA.
ASIA: EXCLUDES JAPAN, USSR, CHINA, NORTH KOREA AND NORTH VIETNAM.
AFRICA: EXCLUDES REPUBLIC OF SOUTH AFRICA.
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Figure 10

from all countries. These relationships are shown graphically in figure 11 for imports from the world and the United States, respectively. From all countries, the elasticity of agricultural imports was 1.20 in 1938 and 1.19 in 1959-61; the elasticity for commercial agricultural imports from the United States was 1.04 in 1938 and 1.32 in 1959-61. However, if commercial and noncommercial imports (shipments under special Government programs) from the United States are considered, the elasticity falls to .97, or about the same for total imports (1.05 from all countries and 1.07 from the United States).

The elasticity of agricultural imports from all countries of 1.20 in 1938 and 1.19 in 1959-61 suggests that little or no changes have occurred in the income-trade relationship or world agricultural trade over the past two decades. A small change in the elasticity for total agricultural imports from the United States was observed, as shown by the elasticities of agricultural imports in 1938 of 1.04 and in 1959-61 of .97 (table 16). The opposite trend (i.e., an increase) was observed for the elasticities of commercial agricultural imports from the United States, increasing from 1.04 in 1938 to 1.32 in 1959-61. The relationships between income and imports of agricultural products from the world and United States are shown graphically on a regional basis in figure 12 for 1959-61.

The implication of the higher elasticities for world agricultural imports than all imports is that, with continued world economic growth and 1959-61 economic conditions, agricultural trade would expand faster than total trade. This implication is contrary, however, to historical patterns of trade expansion relationships over longer periods of time. That is, the demand for nonagricultural goods and services, and hence total trade, expands more rapidly with rising consumer incomes than it does for food and other agricultural products.

The larger import elasticities for world agricultural than nonagricultural products in 1938 and 1959-61 (but not for the long-term period) imply that the cross-sectional analysis may overstate the income-trade relationships that exist over time. The results for agricultural imports from the United States, however, are more consistent with historical trends and trade data. The increase in the elasticity, as well as the larger magnitude of elasticity for commercial agricultural imports from the United States than for total imports, is indicative of actual changes rather than inconsistency of results.

The implication that some changes have occurred in the income-trade relationships over the past two decades is suggested by the data on average elasticities for agricultural products in table 13. These data also indicate that, except for imports from the United

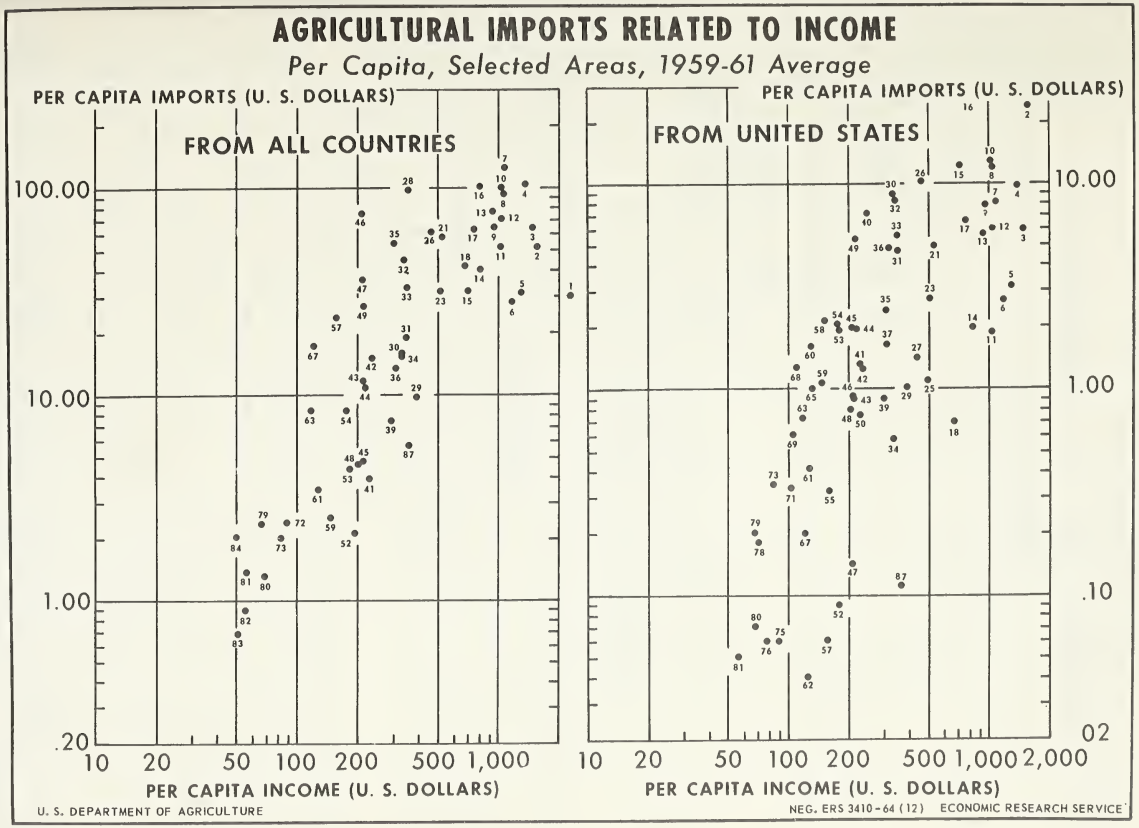
AGRICULTURAL IMPORTS RELATED TO INCOME
Per Capita, Selected Areas, 1959-61 Average
PER CAPITA IMPORTS (U. S. DOLLARS)
FROM ALL COUNTRIES
100.00
10.00
1.00
.20
10 20 50 100 200 500 1,000
PER CAPITA INCOME (U. S. DOLLARS)
PER CAPITA IMPORTS (U. S. DOLLARS)
FROM UNITED STATES
10.00
1.00
.10
02
10 20 50 100 200 500 1,000 2,000
PER CAPITA INCOME (U. S. DOLLARS)
U. S. DEPARTMENT OF AGRICULTURE
NEG. ERS 3410-64 (12) ECONOMIC RESEARCH SERVICE

Figure 11

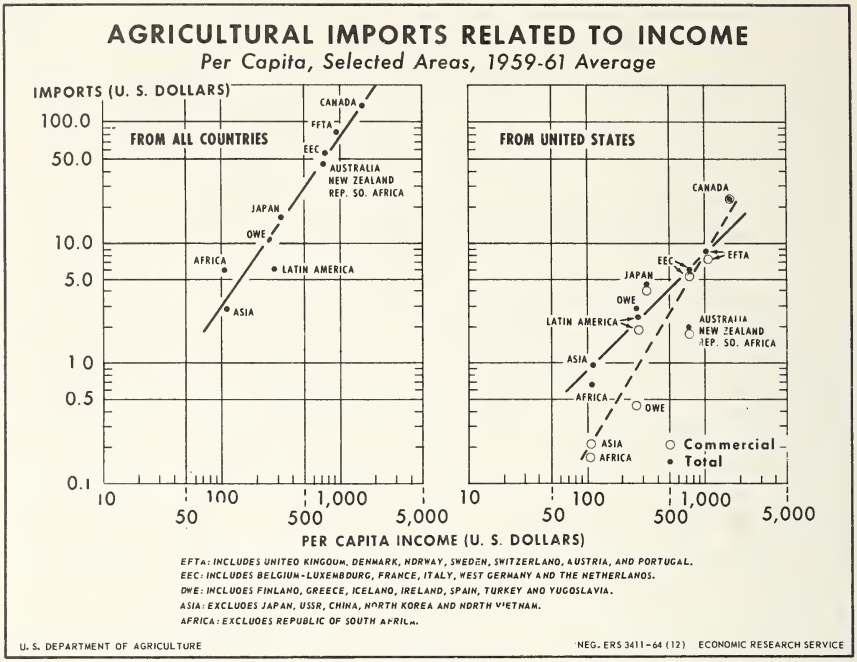

Figure 12

States which are influenced by the P.L. 480 program, the import elasticities for agricultural products are lower than for total imports. Thus, the cross-sectional analysis appears to understate the changes in total imports with changes in incomes over time and overstate the changes in agricultural imports.

In spite of these inconsistencies between time series and cross-sectional analysis, there are other observed consistencies between the results of these two types of analysis. These are: (1) The direction of change in the elasticity of imports, total and

agricultural, is in the same direction, even though the magnitudes are different, (2) the direction of change and magnitude of import elasticities of all goods and services from the United States is similar to total world trade, (3) the magnitudes and direction of change in the elasticities for total agricultural and commercial imports from the United States are different from world agricultural imports, and (4) changes in imports of agricultural products from the United States, both commercial and noncommercial, associated with changes in income have been equal to or greater than for agricultural imports from all other countries.

One reason for the higher estimates of import elasticities for world agricultural products than for total imports is that the cross-sectional analysis abstracts from the structural changes that have occurred. This is shown in table 15 by the average import elasticities for all countries.

There are many possible reasons why import elasticities for commercial agricultural imports from the United States are higher than for imports from all countries, both total and agricultural, in 1959-61. One reason, of course, is the importance of Canada in our export market. The close geographic proximity makes Canada a good export market for agricultural as well as manufactured products. The Canadian economy is more closely integrated with the U.S. economy than other countries and, therefore, has a greater tendency to engage in mutual trade than other high-income countries. If Canada is excluded from the calculations on a regional basis, the elasticity for agricultural imports falls to .84 for total and 1.45 for commercial agricultural imports.

The influence of the special U.S. export program on agricultural trade with the less-developed countries is another possible reason for the higher import elasticities for commercial agricultural imports from the United States. The lower elasticity for total agricultural imports than for commercial agricultural imports from the United States (.97 vs. 1.32) suggests that noncommercial agricultural imports for the less-developed countries are large enough to affect the level of imports. The elasticity for world agricultural imports (1.19) is between the elasticity of commercial and total agricultural imports from the United States. This relationship is consistent with the general assumption that P.L. 480 has substantially increased our agricultural exports to the less-developed countries. These relationships are shown graphically in figure 12 on a regional basis. The effect of the special export program can also be visualized in figure 11. If one plots the total agricultural imports per capita from the United States as shown in appendix table 26, the effect would be a movement of most of the observations for the low-income countries in figure 11 upward, thereby reducing the elasticity of imports.

Because of the continued contribution of food aid to economic development, both income and imports in the less-developed countries would probably have been lower in the absence of the special program. To the extent that these special imports of agricultural products have aided economic development in these countries, the long-run objective of expanding trade has been promoted and the short-run objective of reducing our surplus stocks of agricultural products has been achieved.

Effect of Special Export Program (P.L. 480)

Separate tabulations of commercial and concessional agricultural imports from the United States are available by countries only for the years 1954/55 to date. But since 1954, when P.L. 480 programs were initiated, commercial agricultural imports from the United States by low-income countries[12] as a group have increased 4.9 percent a year and national income has increased about 4.2 percent a year (table 17). Total agricultural imports from the United States have increased much more rapidly--about 11 percent a year.

The 1954-62 period was one of relatively rapid growth in agricultural imports from the United States by all foreign countries. This rapid expansion was influenced, of course, by shipments under P.L. 480 programs, especially in the low-income countries. However, in a later period, i.e., 1955/56-1961/62, when P.L. 480 programs were more fully underway, the growth in total agricultural imports from the United States by the low-income countries remained about the same. Moreover, growth in commercial agricultural imports from the United States actually increased substantially to 8.4 percent a year. Some countries substituted commercial imports for P.L. 480 imports after the program got underway.

The trend of commercial imports of agricultural products by these countries during 1954-62 has depended on the rate of income growth in a particular country. In rapidly growing countries like Japan, Thailand, and Mexico, commercial agricultural imports have grown rapidly both by expansion of total agricultural imports, and by a gradual substitution of commercial for P.L. 480 imports. For example, total agricultural imports from the United States by Japan steadily rose from $342 million in 1955/56 to $511 million in 1962/63. Per capita income rose about 9.7 percent per year during this period. Commercial agricultural imports by Japan increased from a low of $250 million in 1955/56 to $485 million in 1962/63.

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[12] As defined here, low-income countries have per capita incomes of less than $500 per year, as compared with nearly $2,500 in the United States in 1962.

TABLE 17.--Average rate of growth of national income and increase in agricultural imports from the United States, by low-income countries, 1954/55-1961/62 and 1955/56-1961/62

Type of economic growth	Total income	Agricultural imports	
		Total	Commercial
	Percent	Percent	Percent
1954/55-1961/62:			
Low-income countries[1]	4.2	11.4	4.9
Rapid growth[2]	8.5	8.7	9.3
Slow growth[3]	2.7	11.5	.4
1955/56-1961/62:			
Low-income countries	4.0	11.0	8.4
Rapid growth	8.1	7.6	14.0
Slow growth	2.4	13.0	2.8

[1] Includes all countries in Asia (except China, Mongolia, North Korea, and North Vietnam), Africa (except Republic of South Africa), and Latin America. Spain and Turkey are also included. These countries have per capita incomes of less than $500 a year. Income and agricultural imports are expressed in 1954 dollars.
[2] Japan, Venezuela, Israel, Chile, Cyprus, Ghana, Iraq, Thailand, and Mexico.
[3] Includes all other low-income countries.

The P.L. 480 share of total agricultural imports was 33 percent in 1955/56, but Japan now is one of our biggest dollar markets.

However, in countries like Pakistan and India, where growth is somewhat slower, commercial agricultural imports have remained almost constant while total agricultural imports from the United States increased from $751 million in 1954/55 to $1.6 billion in 1961/62. In India, for example, total agricultural imports increased from $45 million in 1954/55 to $348 million in 1962/63. In the same period, commercial imports rose only slightly from $16 to $23 million. During the period 1954-61, India's total income grew about 4 percent per year.

These contrasting trends between more rapid and slower growth countries indicate a close association of growth in commercial agricultural imports with growth in real income per person. Purchasing power has increased much more rapidly in the first group than in the second. Consequently, commercial imports have increased faster in the rapid growth group than in the slower growth group.

In the future, the commercial share of U.S. total agricultural exports to the low-income countries can be expected to increase further with economic growth. A comparison of 24 countries at different levels of development in 1959-61 shows that the commercial share (as well as the level) of total U.S. agricultural exports was much greater in countries with higher levels of income per person. Commercial exports represented less than 30 percent of total U.S. agricultural exports to 12 countries with incomes per

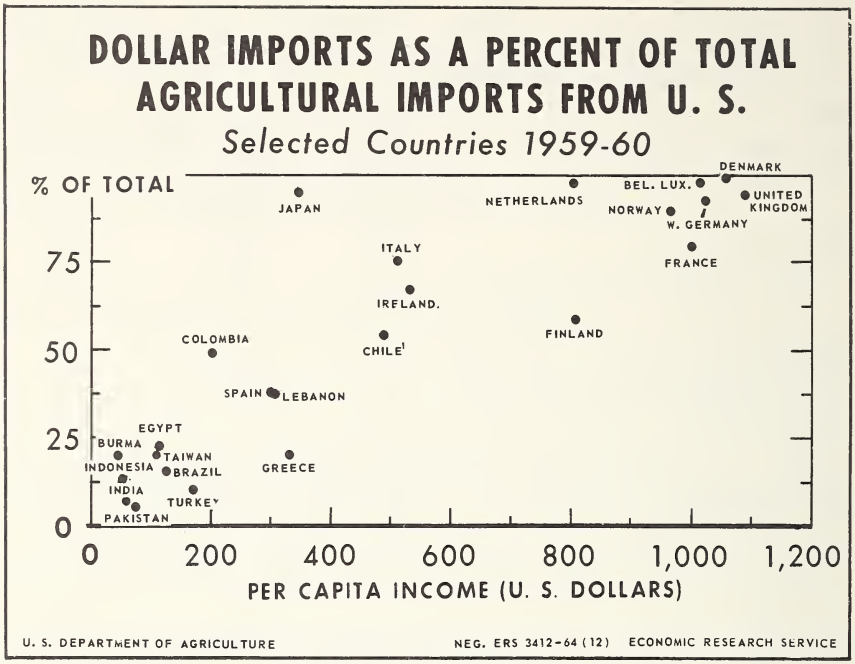

Figure 13

person under $300 (fig. 13). In 5 middle-income countries, with per capita income of $300 to $600, commercial exports were generally between 60 and 70 percent.

In the Western European countries, with incomes per person above $900, the proportion of total agricultural exports that were commercial was generally 90 percent in 1959-61. Since 1959-61, as most of the P.L. 480 programs have been phased out, the proportion in these countries has generally reached 100 percent.

The effect of special Government exports on the pattern of agricultural imports by developed and less-developed countries also can be observed graphically in figure 14. If the long-run elasticities of commercial agricultural imports for the less-developed countries are assumed to be equal to or slightly greater than the elasticity of commercial imports for the developed countries, then the following conclusions appear to be warranted. The effects of P.L. 480 on the import pattern of United States agricultural products have (1) been beneficial to the United States by increasing the level of agricultural imports in both the developed and less-developed countries at a faster rate than would otherwise have been expected on the basis of growth in per capita incomes--thereby giving some short-run relief to agricultural surplus problems, (2) been beneficial to the recipient countries by promoting their economic growth and to the

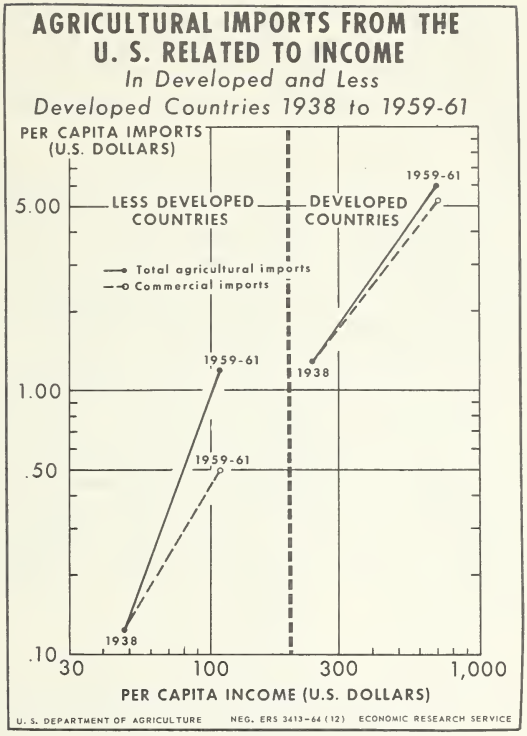

Figure 14

United States by increasing the long-run abilities of these foreign countries to import from the United States and hence create larger market outlets for United States farm products, (3) caused relatively little substitution of special imports for commercial imports in the less-developed countries, and (4) not caused the developed countries to reduce their commercial imports below their long-term level, as the special export program is phased out in these countries.

Economic Growth and Import Elasticities

Previous results on the elasticity of imports for developed and less-developed countries indicate an increasing propensity to import agricultural products as economic development proceeds in the less-developed countries but not in the developed countries. Similar results were obtained for imports of all products, thus supporting the proposition suggested by Nurkse (34). His proposition is that the propensity to import declines in the advanced countries with development, a situation which leads to a decline in the demand for products of the less-developed countries and a general slackening

in their rates of growth. There is evidence that Nurkse's propositions may be correct for the developed countries, but not for the less-developed countries. On the contrary, the propensity to import in the less-developed countries appears to increase rapidly with development (6).

The results of a recent U.N. study of changes in imports of the industrially advanced nations from the developing countries and of imports of the developing nations from the rest of the world show that the import elasticities are much greater than 1.0 for the developing countries. However, the import elasticities are less than 1.0 for the industrial countries, especially for agricultural products (49). These results are just the opposite for fuels and most manufactured goods (table 18). The trade data presented in this study and shown in table 19 generally support the conclusions that the import elasticity for agricultural products tends to decline in the highly advanced nations but generally to increase very rapidly in the developing countries (6). In short, the results of this study indicate that total world imports increase faster than world income but that world agricultural imports increase as fast or slightly less than growth in incomes.

TABLE 18.--Income elasticity of imports of developed and developing countries, by selected commodities, 1953-60[1]

Commodity group	Imports of developed countries from less-developed countries[2]	Imports of developing countries from the rest of the world
Foodstuffs (SITC groups 0 and 1)...	0.76	1.49
Agricultural raw materials and ores (SITC groups 2 and 4).....	0.60	1.65
Fuels (SITC group 3).....	2.87	0.35
Chemicals (SITC group 5).....	---	1.85
Manufactured goods (SITC groups 5 to 8).....	1.24	---
Machinery and equipment (SITC group 7, excluding 732.01 or passenger cars).....	---	1.16
Other manufactures (SITC groups 8 and 732.01).....	---	0.82

[1] United Nations, (49, p. 6).
[2] These estimates were derived from regression or gross domestic product of the industrially developed countries on imports of each commodity group from the developing countries. The sample covers the period 1953-1960.

Only limited conclusions can be drawn from the data in table 19, especially for the relationship between income and trade for the developed countries. The extremely low correlation coefficients and high standard deviations for the trade elasticities suggest that factors other than income explain trade. However, income appears to be a better explanatory variable for total and agricultural imports of the larger number of less-developed countries. These data are

TABLE 19.--Comparison of elasticity of imports and correlation coefficients for developed and less-developed countries, 1959-61

Type and origin of imports by countries	Elasticity of imports (b)[3]		Correlation coefficients (R^2)	
	A[4]	B[5]	A[4]	B[5]
Developed countries				
Total imports from:				
All countries.....	.96 (0.2026)	.62 (0.1839)	*53	*27
United States, total[1].....	1.09 (0.1805)	.53 (0.2553)	*62	*14
United States, commercial[2].	1.32 (0.1880)	.68 (0.2815)	*69	*17
Agricultural imports from:				
All countries.....	.92 (0.2080)	.52 (0.2185)	*46	*20
United States, total[1].....	.69 (0.2658)	.66 (0.1093)	*24	11
United States, commercial[2].	1.42 (0.2930)	.98 (0.3915)	*49	*18
Less-developed countries				
Total imports from:				
All countries.....	1.53 (0.1075)	1.40 (0.1660)	*97	*60
United States, total[1].....	.80 (0.1366)	1.65 (0.3378)	39	18
United States, commercial[2].	1.07 (0.3572)	1.65 (0.3178)	*16	*39
Agricultural imports from:				
All countries.....	1.69 (0.2373)	1.15 (0.3417)	*63	*15
United States, total[1].....	.81 (0.3506)	1.26 (0.3313)	11	27
United States, commercial[2].	2.10 (0.2353)	3.29 (0.4094)	*63	*65

[1] Includes exports under P.L. 480 programs.
[2] Excludes special shipments under P.L. 480.
[3] Figures in parentheses are standard errors of estimate obtained from the double logarithmic regression equation.
[4] Countries classified by income and geographic criteria (see tables 9 and 10). These computations exclude the Eastern Trade Area.
[5] Countries classified by income alone. Developed countries are those with per capita income greater than $300, while the less-developed are those with less than $300 of income per capita in 1959-61. These computations exclude the Eastern Trade Area.

*Significant at the 95-percent level.

not presented as proof of Nurkse's hypothesis of declining import propensity, but rather as general information that lends some support to his proposition. It is not too surprising that the import elasticities are higher for the less-developed countries than for the developed countries because of greater excess demand in the low-income countries. Nor is it too surprising that import elasticities in the developed countries are low and that income explains very little of the variation in trade where excess supply rather than demand conditions generally prevails.

There will be, of course, slow, moderate, and fast rates of progress in the different countries in the years ahead, resulting in different rates of expansion in imports. Thus, estimate of trade potentials for any future period will vary with whatever economic conditions are assumed in the different countries. What is important, however, is that when economic growth does occur--regardless of the rate--some positive increase in trade is very likely to result. Thus, the United States has a definite and positive interest in continued foreign economic growth, and especially in the less-developed countries since they have the highest import elasticity.

Under these conditions, it becomes very clear that market outlets for an increasing part of American agriculture will become more and more dependent upon the rate of economic progress in other countries. One indication of this growing dependence on the export market is suggested by the proportion of total production of certain crops that were exported in 1963-64 (fig. 15). In 1963-64, exports of wheat and rice were equivalent to 75 and 64 percent, respectively, of our annual production. A large proportion of our annual soybean, cotton, and tobacco production is also exported.

In addition, rising incomes in foreign countries will expand the consumption and demand for U.S. farm products and will affect the volume and commodity composition of U.S. agricultural exports.

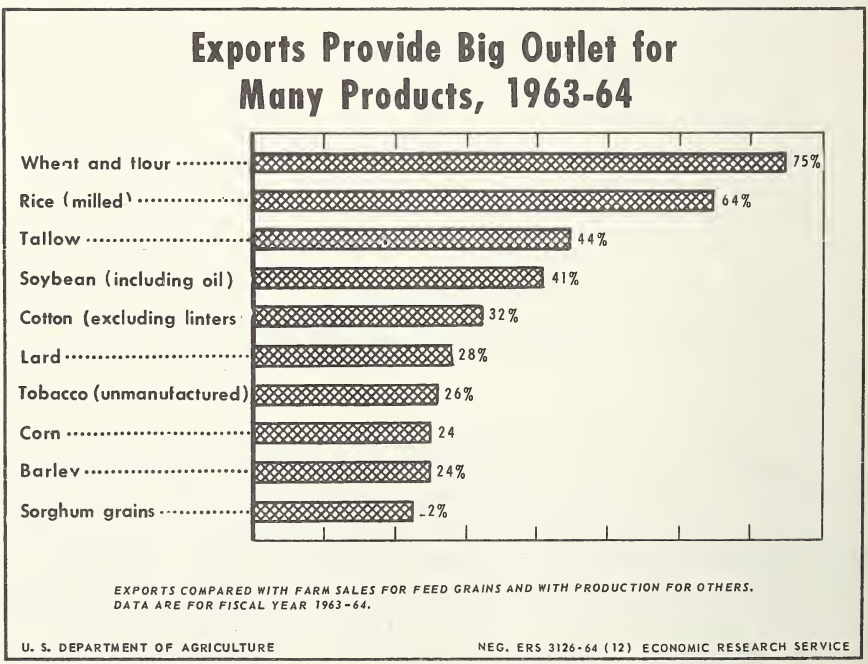

Figure 15

Shifts in demand for different commodities are also a logical consequence of economic growth. Implications of these shifts for U.S. farm products are very important in projecting the demand for particular commodities. But an examination of the changes in the commodity composition of U.S. agricultural exports associated with foreign economic growth is not possible in the scope of this study. However, a limited analysis of the changes in the commodity composition of U.S. agricultural exports to the developed and less-developed countries should prove useful at this point. Since economic growth and development is a dynamic process involving changes in the structure of demand and production, it can be expected that these changes will be reflected in the commodity composition of trade.

Composition of U.S. Agricultural Trade

The long-run effect of world economic growth has been to alter the pattern, direction, and volume of world trade. It has altered the demand for consumer products and, thereby, the commodity composition of world trade. With respect to U.S. agricultural trade, foreign economic development has altered the commodity composition of agricultural exports, causing exports of some products to increase more rapidly than others. These changes in demand for agricultural exports are related to economic growth conditions and demand in the developing countries. That is, in the early stages of economic development, the demand for food and foodstuffs is usually greater than for agricultural raw materials. In the advanced stages of economic growth, industrial demand increases the demand and utilization of agricultural raw materials. Therefore, as countries develop economically, their demand for agricultural products will change. Changes in the commodity composition of U.S. agricultural exports should, therefore, reflect these changes in foreign demand.

Changes in the commodity composition of U.S. agricultural exports from 1935-39 to 1960-61 are shown in table 20. They are shown graphically in figure 16 for the period 1945-62 and in figure 17 for more recent years.

Changes in the commodity composition of U.S. exports between animal and vegetable products do not show any drastic changes in the last 30 years, except during the 1940-44 period. Since 1935-39, however, there has been a gradual shift between these 2 broad categories of exports. Animal products represented only 8 percent of total agricultural exports in 1935-39; they increased to 55 percent during the war years and declined to 12 percent in 1960-61--or an increase of 4 percentage points in the past 2 decades. Vegetable and vegetable products remain the primary type of agricultural

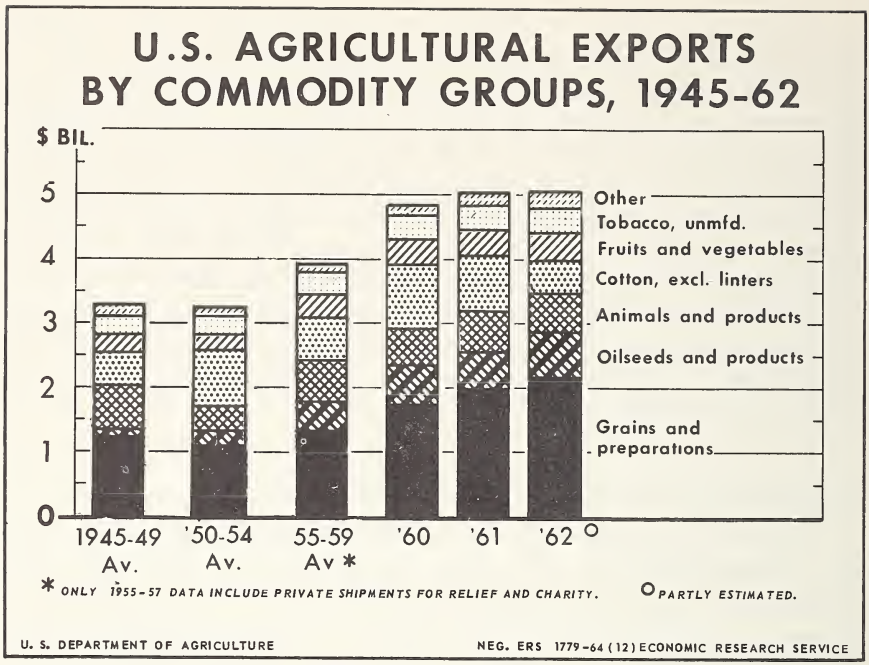

Figure 16

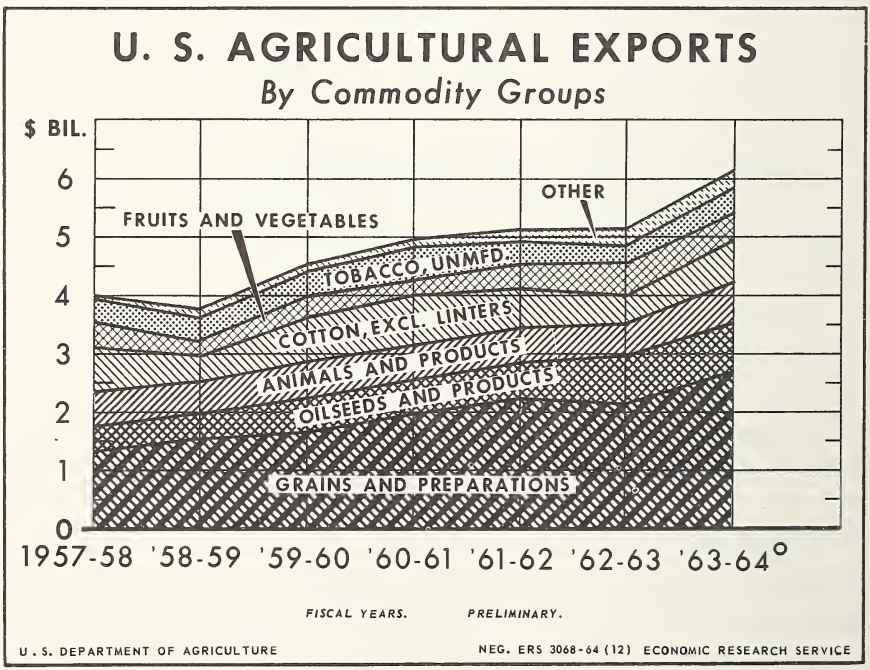

Figure 17

TABLE 20.--Changes in distribution and composition of U.S. agricultural exports: 5-year averages, 1935-39 to 1960-61

Type of commodity	Value of exports						Average annual rate of increase	
	1935-1939	1940-1944	1945-1949	1950-1954	1955-1959	1960-1961	1935-39 to 1950-54	1950-54 to 1960-61
	Million dollars						Percent	
Total agricultural exports.	747	1,307	3,280	3,249	3,937	4,931	22	7
Animal & animal products...	63	724	669	375	632	605	33	8
Vegetable products.....	684	583	2,587	2,834	3,305	4,326	21	7
	Percentage of total agricultural exports							
	Percent							
Animal products.....	8	55	21	12	16	12		
Vegetable products.....	92	45	79	88	84	88		
Grain and grain products.	14	8	39	36	35	39	64	8
Wheat and rice.....	6	5	30	25	22	26	104	2
Feeds and feed grains..	6	2	7	10	13	13	39	12
Others[1].....	2	1	2	1	.5	.5	7	-3
Cotton.....	42	10	16	27	17	19	11	1
Tobacco.....	17	8	8	9	9	8	8	4
Oilseed and veg. oils....	1	3	3	6	11	11	175	22
Veg. and veg. preparations.....	2	4	4	3	3	3	35	6
Fruits and nuts.....	12	6	6	4	6	5	3	11
Others[2].....	4	6	3	3	3	2	14	0

[1] Includes barley malt, grain starches, rye, and wheat not wholly U.S.
[2] Includes linters, vegetable fibers, drugs, herbs, hops, spices, sugar and related products, and miscellaneous products.

Source: (10).

exports, even though total agricultural exports have declined from 92 percent in 1935-39 to 88 percent in 1960-61.

Within the broad group of vegetable products, significant changes in the commodity composition of exports have taken place. In 1935-39, cotton and tobacco represented 59 percent of all agricultural exports (42 and 17 percent, respectively). From 1935-39 to 1960-61, they declined to only 27 percent of total exports (19 and 8 percent, respectively). On the other hand, during this period, grain and grain products increased from 14 to 39 percent of all agricultural exports. The commodities that experienced the most drastic increase in the percentage of total agricultural exports during the past 2 decades were (1) wheat and rice, (2) feeds and feed grains, and (3) oilseeds and vegetable oils. Wheat and rice as a group increased from 6 to 26 percent of all agricultural exports during this period, while the percentage for feeds and feed grains more than doubled (6 to 13 percent). Exports of oilseeds and vegetable oils increased in percent of total agricultural exports during this period from 1 to 11 percent. These products have accounted for the major share of the increase in agricultural exports.

These changes in the commodity composition of U.S. agricultural exports have been related to changes in the demand for these products induced by economic growth in foreign countries. For example, in 1935-39 the developed countries accounted for 75 percent of all U.S. wheat and rice exports. By 1959-61, they accounted

for only 33 percent of these exports. Also, the developed countries have consistently taken more than 75 percent of all U.S. exports of feeds and feed grains as well as oilseeds and vegetable oils. These patterns of imports by the developed countries are not surprising since imports of oilseed and vegetable oils usually require additional processing before utilization, and it is the developed countries that have the processing industries. Imports of feeds and feed grains by developed countries are primarily for use in an advanced agricultural economy for livestock production. Again, it is the developed countries that have the most highly developed agricultural and livestock economy. As for changes in the value of wheat and rice imports between the developed and less-developed countries, the shift in the direction of grain exports can be explained by changes in demand.

In the late 1930's and early postwar years, the demand for food in the form of wheat and rice was great in Western Europe. During this period, wheat and rice imports from the United States increased in the developed countries from about $44 million to a little over $400 million in 1950-54. Since 1950-54, the absolute level of wheat and rice imports has declined. The economic recovery of European agriculture, especially in grain production, has no doubt been responsible for this decline.

The changes in imports of selected major agricultural commodities for the developed and less-developed countries are shown in table 21. Here again the changes in imports per capita have been related to changes in per capita incomes in the selected areas and are expressed as the elasticity of imports for agricultural products from the United States. These elasticity coefficients reflect the relative changes in demand associated with changes in incomes and consumption in these economic areas. The largest import coefficients for the developed countries were for grain and grain products in the period 1935-39 to 1950-55. During this period, grain imports increased most rapidly. Since 1950-55 the coefficient for wheat and rice decreased from a high of 3.68 to -.32. On the other hand, the import elasticity coefficient for animal products increased from .47 in the first period to 1.60 in the most recent period. The elasticity of imports for feeds and feed grains, vegetables, and oils has declined in recent years from the high values observed in the early period. Nevertheless, they continue to be among the highest of all agricultural products. These relationships between products will probably remain unchanged for the next decade.

In the less-developed countries, the import elasticities for animal products declined from .87 in the early period to -.42 in the latter period. On the other hand, the import coefficients for wheat and rice have increased in recent years. These changes in the commodity composition of agricultural imports are in response to their rapidly

TABLE 21.--Elasticities of imports for selected U.S. agricultural products associated with changes in incomes in economically developed areas, 1935-39 to 1950-55; 1950-55 to 1959-61

Economic area and commodity group	Elasticity of imports for U.S. products	
	1935-39 to 1950-55	1950-55 to 1959-61
Developed countries		
Animal products	.47	1.60
Vegetable products	2.40	.69
Grain products	3.68	.60
Wheat and rice	3.69	-.32
Feed and feed grains	3.68	1.47
Cotton and tobacco	1.36	.23
Oilseeds and vegetable oils	4.44	1.86
Vegetable and vegetable preparation; fruits and nuts	1.54	1.39
Total imports	1.37	1.80
Less-developed countries		
Animal products	.87	-.47
Vegetable products	1.76	.73
Grain products	2.11	2.24
Wheat and rice	2.12	2.44
Feed and feed grains	2.08	1.01
Cotton and tobacco	1.03	1.07
Oilseeds and vegetable oils	2.33	.41
Vegetable and vegetable preparation; fruits and nuts	1.18	-.06
Total imports	1.59	.53

growing food needs. However, unless the less-developed countries attain a greater degree of self-sufficiency in food and grain production, as well as a more rapid rate of economic growth, the demand structure for agricultural imports for these countries should remain relatively unchanged for the next 2 decades.

The effects of foreign economic development on the demand for U.S. farm products depend, therefore, upon the demand structure in different countries and the nature and extent of changes in demand that emerged from the growth process. The market potentials are different for the developed and less-developed countries simply because their incomes and demand structures are different. Likewise, further economic growth is expected to expand commercial market outlets for U.S. farm products more rapidly in the developed than in the less-developed countries in the years ahead simply because of the wider variety of commodities that will be demanded. In view of the commodity composition of U.S. agricultural trade with developed countries, the type of products demanded, and the expected change in demand for agricultural products, these relationships must be taken into account in developing Government programs to facilitate U.S. agricultural production and resource use adjustments.

More detailed analysis is needed on the structural changes involved in countries passing through different stages of development before projections of market potentials for particular commodities can be usefully attempted. The following projections, therefore, are for aggregate values only.

CHAPTER V. FUTURE TRADE POTENTIALS

Judging from the experience during the past 2 decades, world economic growth will have a definite influence on future world trade expansion and on the growth in U.S. agricultural exports. Of course, U.S. exports will be influenced by changes in (1) the demand for and the production of agricultural products in the different importing countries, (2) supplies made available for export by competing foreign countries, and (3) U.S. capacity for supplying agricultural products for export. Since the United States accounts for about 15 percent of all the agricultural products imported by foreign countries (13 percent of the developed countries and 23 percent of the less-developed countries in 1959-61), developments affecting foreign production, consumption, and trade can have large impacts on U.S. agricultural exports.

To provide a general indication of how foreign markets for U.S. exports may grow by 1980, 2 sets of projections were made. These projections, shown in table 22, are based on the following assumptions:

(1) A continuation of the long-term average elasticities for total and agricultural imports since 1938, and

(2) A continuation of the import elasticities for total and agricultural imports as calculated by the cross-sectional analysis in 1959/61.

In both projections, population and income were assumed to grow at the 1953/55 to 1959/61 rates.

The most recent period, 1953/55 to 1959/61, was chosen as a basis for projecting population and income for 2 reasons. These are: (1) Higher current population growth rates than in the early postwar years. The population growth rate has increased in recent years and may, in fact, go higher. However, it is assumed that the less-developed countries will have some success in controlling population in the coming decade, so that the future growth rate would not greatly exceed the current rate. (2) Greater current economic progress than in the 1940's. Even though current economic growth throughout the world has been varied, it is assumed that these conditions will be more indicative of future world economic growth conditions than those prior to 1950. Slow, moderate, and fast rates

TABLE 22.--Estimates of world population, income, and trade, including U.S. exports, for 1980

Item	Unit	1959-61 levels	1980 estimates, using 2 sets of conditions	
			I[1]	II[2]
Population	Billion	2.94	4.28	4.28
Total income	Bil. dol.	1,127	2,286	2,286
Per capita income	Dollars	383	534	534
All Countries				
Total imports	Bil. dol.	124.85	256.5	260.0
Per capita imports	Dollars	42.46	59.93	60.75
Agricultural imports	Bil. dol.	38.31	82.7	76.2
Per capita imports	Dollars	13.03	19.33	17.80
United States				
Total exports[3]	Bil. dol.	19.53	40.6	42.2
Agricultural exports[3]				
Total	Bil. dol.	4.61	9.3	9.8
Commercial[4]	Bil. dol.	3.56	8.0	7.1
Per capita exports[3]				
Total	Dollars	7.07	10.10	10.49
Agricultural				
Total	Dollars	1.67	2.31	2.43
Commercial[4]	Dollars	1.29	1.99	1.76

[1] Assuming the 1959-61 elasticities based on 50-80 countries; excludes the Eastern Trade Area.

[2] Assuming the long-term elasticity of imports for the world. Total imports from all countries (1.08) from United States (1.19); agricultural imports from all countries (.94) and from the United States (1.13, total) and (.94, commercial).

[3] Exports are actually imports by all countries from the United States.

[4] Excludes special shipments under Government programs (PL 480).

of economic progress in the different countries will continue in the years ahead, but it is assumed here that the next 2 decades will produce similar results as the past 2 for the total of all countries.

Two sets of assumptions on import elasticities were chosen on the basis that the estimates of the change over time and within 1 time period yield somewhat conflicting results. That is, the import elasticities for 1959-61 for agricultural products are higher than for total imports, whereas the opposite is true for the longer term elasticities. It is not clear at this point which would be more correct for the future, even though the longer term elasticities appear to be more logical and consistent with historical trends. Consequently, 2 sets of projections are made to provide possible limits to future trade potentials in total and agricultural trade. (The results of these projections are shown in table 22.)

With the 1959-61 trade and income relationship, the value of total world imports would increase from about $125 billion in 1959-61 to $257 billion by 1980. The value of total world imports would

rise to $260 billion if the long-term income and trade relationship prevailed. Under 1959-61 and long-term income and trade conditions, respectively, U.S. exports of all goods and services would increase from $19.53 billion in 1959-61 to $41 or $42 billion by 1980.

If the real growth rates in income and imports during 1959-61 continue, the total value of all agricultural exports from the United States would be twice as large in 1980 as they were in 1959-61. The value of total agricultural imports from the United States by all countries would increase from $4.6 billion in 1959-61 to $9.3 billion in 1980. Commercial imports from the United States would increase from $3.56 billion to $8.0 billion. World imports of agricultural products would expand from $38.3 billion to $83 billion by 1980, or at about the same rate as total U.S. agricultural exports, but slightly less than U.S. commercial agricultural exports.

On the other hand, if the long-term changes in imports associated with changes in incomes (elasticity of imports) prevail during the next 2 decades, expansion in U.S. commercial agricultural exports and world agricultural imports would be less rapid than total U.S. agricultural exports. Under these conditions, commercial agricultural exports would increase to only $7.1 billion in 1980 as compared to $9.8 billion for total U.S. agricultural exports. In other words, noncommercial U.S. exports would be much larger ($2.7 vs. $1.3 billion) in 1980 if the lower long-term rather than the 1959-61 import elasticities prevailed. Under both conditions, however, total agricultural imports from the United States by all countries (excluding the Eastern Trade Area) would reach a level of more than $9 billion by 1980. Exports to the Eastern Trade Area would be additional, as they have been relatively small in the past. The rate at which commercial and noncommercial exports by the United States will increase over the next 2 decades will depend upon factors such as the level of food aid and economic growth in the less-developed countries. But it appears likely that commercial exports will expand more rapidly than noncommercial exports, especially if current world economic growth rates continue. This supposition is supported by recent trends (since 1959) in commercial and noncommercial agricultural exports of the United States (fig. 18).

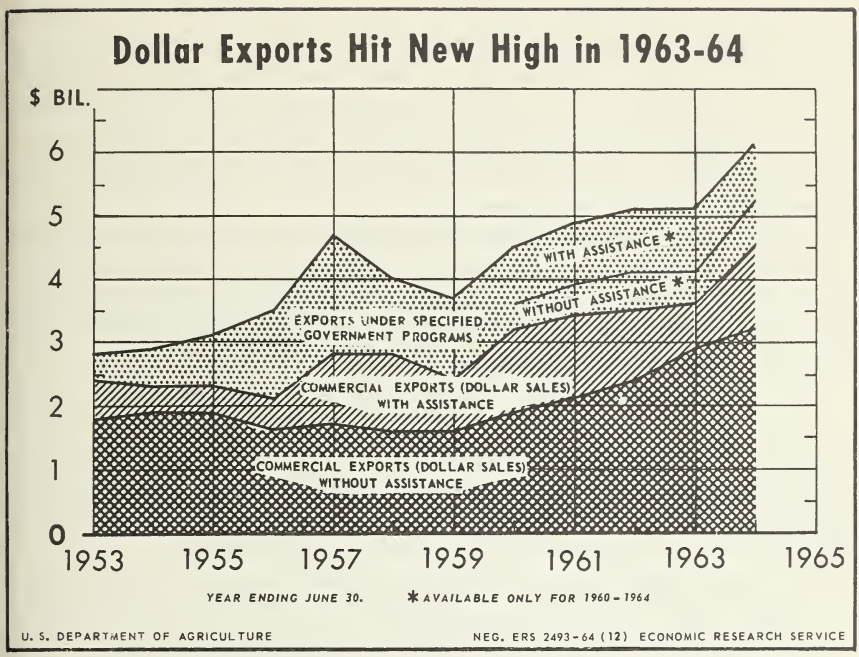

Figure 18

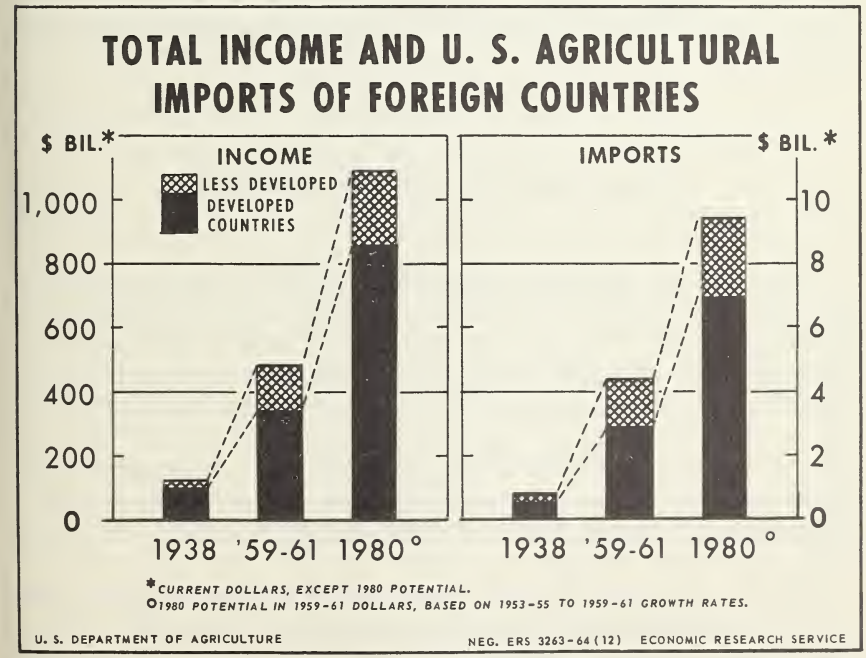

Figure 19

The above estimates suggest that the value of total U.S. exports would more than double by 1980, while U.S. agricultural exports would double. If the 1959-61 relationships between income and trade for the developed and less-developed countries continued during the next 2 decades, U.S. agricultural exports to the developed countries would more than double while those to the less-developed countries would almost double as shown in fig. 19.

Agricultural imports by the developed countries likely will account for a declining proportion of total imports. Most developed countries are rapidly improving agricultural technology and production. Moreover, the proportion of income spent for food likely will decrease as per capita incomes increase.

For the less-developed countries, imports of agricultural products quite likely will increase as fast or faster than income. These countries are experiencing rapid population growth and find it difficult to expand their agricultural production quickly. Many densely populated countries are likely to become large net importers of agricultural products as they progress economically.

A large proportion of U.S. agricultural exports to the less-developed countries is financed under P.L. 480 programs. If these countries achieve income growth, an increasing proportion of U.S. sales can be commercial. Use of U.S. surplus agricultural capacity through food aid programs to help the less-developed countries develop and achieve higher incomes can lead to larger commercial sales of farm products in the future than can be predicted with past trends.

CHAPTER VI. CONCLUSIONS

The results of this study suggest that there is a definite relationship between growth in income and trade and that sustained world economic growth will generally lead to an increase in the actual and potential level of trade between countries. The income and trade relationships, as revealed by a historical and cross-sectional analysis in 1959-61 of some 50 to 80 countries, indicate that, with continued economic growth, world trade and total U.S. exports will expand slightly faster than world income. But world agricultural trade and U.S. agricultural exports may grow slightly less than income.

Future expansion in the demand for U.S. agricultural and other products will continue to be closely tied to world economic conditions. Rapid economic growth abroad will help to maintain a steady growth in U.S. agricultural and total trade; economic stagnation and

recessions abroad will brake trade expansion and reverse the current growth trends in U.S. exports. Therefore, any projections of U.S. trade potentials must necessarily take into account world economic and political conditions.

The central feature of contemporary international trade is that the economically advanced countries are their own best customers. Postwar expansion in world trade has become increasingly dependent upon economic conditions in the developed countries. In the early postwar years, because of its large share of world production and trade, the United States played a dominant role in international trade movements. More recently, because of rapid economic growth and recovery in Western Europe and Japan, output has risen faster in these countries. Therefore, the relative influence of U.S. economic conditions on world trade patterns has been reduced.

Since economic growth is a dynamic process involving changes in the structure of production and consumption, continued economic growth of the developing countries will alter the existing patterns of trade. With economic growth and development, total trade will expand faster in the developed countries than agricultural trade. On the other hand, agricultural trade will expand faster than total trade in the less-developed countries. The higher growth in demand for agricultural than for nonagricultural products is related to the relatively high income elasticity of demand for food in low-income countries (33).

Since 1938, the developed countries have increased their share of world trade from 67 to 72 percent. Their share of world agricultural exports has declined from 59 percent in 1938 to 52 percent in 1959-61. In 1938, the developed countries accounted for 83 percent of all agricultural imports; in 1959-61, they accounted for 71 percent. These trends are in direct contrast to those for the less-developed countries which increased their share of both exports and imports of world agricultural trade. By comparison, since 1938 the proportion of both total and agricultural exports of the United States to the less-developed countries has increased while the proportion to the developed countries has declined. One reason for the increase in U.S. exports to the less-developed countries is the influence of P.L. 480 and other aid programs. These programs help to explain, in part, the reversal of the long-term decline in agricultural exports as a proportion of total U.S. exports. Another reason for this reversal is the recent increase in imports by the United States from the less-developed countries. In turn, this increase may have greatly influenced these countries to import a larger proportion of their total and agricultural products from this country.

The influence of past U.S. economic assistance has been reflected in increased trade with the developing nations which have experienced rapid economic growth. Higher import elasticity for

agricultural products than for total products implies that new and larger market outlets can be anticipated over the next decade if economic growth can be promoted in more less-developed countries. If this economic growth is not achieved, expansion in U.S. agricultural exports will not be as fast as in recent years. In that event, it will depend largely on the more slowly expanding demand in the higher developed countries, and the degree to which food aid can be expanded to meet the desperate food needs of the less-developed countries.

Slow, moderate, and fast rates of progress in the different countries will occur in the years ahead, resulting in different rates of expansion in imports. Thus, estimates of trade potentials for any future period will vary with whatever economic conditions are projected for the different countries. What is important is, that when economic growth does occur--regardless of the rate--some positive increase in trade is very likely to result and some of this increased trade will be for agricultural products. Under these conditions, market outlets for an increasing part of American agriculture will become more and more dependent upon the rate of economic progress in other countries.

Shifts in demand for different commodities are also logical consequences of economic growth. Implications of these shifts for U.S. farm products are very important in projecting the demand for particular commodities. But an examination of the changes in the commodity composition of U.S. agricultural exports associated with foreign economic growth is not possible in the scope of this study. Such an analysis, however, should be an essential part of any long-term trade projection study designed to yield estimates of foreign demand for particular U.S. farm commodities.

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APPENDIX

A study of this nature involves many statistical and economic problems. These include problems of (1) aggregation of data, (2) changes in relative and absolute prices, (3) identification of the effects of income and prices on changes in the volume and composition of imports, and (4) measurement of income and trade data in domestic currencies and finally in a common currency--U.S. dollars.

The latter problem was handled by using the trade data as published by the United Nations and by the Contracting Parties to the General Agreement on Tariffs and Trade (GATT). No attempt was made to further adjust these data for errors in the exchange rates used for converting trade data to U.S. dollars. However, some choice was exercised in the selection of exchange rates in converting income data to U.S. dollars. For most of the developed countries, the average annual exchange rate as reported by the International Monetary Fund was used. For the remaining countries, either the free rate or the principal import rate was used where multiple exchange rates prevailed. The official rate was used for those countries where no other exchange rate existed. As with the trade data, no attempt was made to adjust for errors in the national account data or for inequalities in the purchasing power among countries. This procedure of converting national income data to U.S. dollars probably reflects the relative income positions of the developed countries more accurately than for the less-developed countries. The effect of some upward adjustments in income levels for the less-developed countries on the estimated income-trade relationships would be to reduce the magnitude of the import elasticities obtained with unadjusted data.

The question of relative and absolute prices and their effects on the income-trade relationships obtained is a vital but unresolved issue. Previous work by Friedman, Neisser, and Harberger suggests that measurement and identification of the relative price effect on changes in import demand are very difficult (14, 33, 23). The difficulty of measuring the effect of relative prices is related to the observed positive correlation of changes in income and prices. That prices of agricultural products entering international trade have moved upward with income and output over the past 2 decades is shown by a comparison of the U.N. indices of the unit price for agricultural and manufactured products. On the basis of these data, the effect of ignoring changes in relative prices is to impart a

downward bias on estimates of import elasticities. For example, suppose (as in this study) import demand (I) is estimated by $I = a+BY$, but that the "true" relationship is given by $I = a+by+cp$, where y is a measure of income, p the measure of relative prices, and all variables are expressed in their logs. It can be shown that, if $c < o$, plim, $B < b$. Since we may safely assume that $c<o$,[1] the effect of ignoring relative prices is to yield conservative estimates of import elasticities.

The question of using current versus deflated values of the variables in an analysis of income-trade data is also a logical but unresolved issue. The analysis of the long-term income-trade relationships in this study was made in current prices on the assumption that the use of any available deflators would result in cumulative errors rather then progressive refinement. Some estimates of import elasticities were obtained for income and trade data expressed in 1953-55 U.S. dollars. Here, income data were deflated by the implicit deflator for Gross National Product for the United States and import data were deflated by the unit price index for world trade as reported by the United Nations. Generally, these results yielded higher elasticities than with current data and appeared rather unrealistic. These results were rejected because it appeared that the income-trade relationships had been distorted by deflation.

The results of previous work by Friedman on income elasticities of demand for the United States strongly suggest that the import elasticities obtained from current data are likely to be higher than those obtained with real income and trade data (14). Further testing of this hypothesis for the relation between income and trade must await the development of more relevant deflators than are currently available.

Finally, the merits of aggregation versus nonaggregation should be acknowledged. According to Grunfeld and Griliches, aggregation of the data is justified and may in fact produce an aggregate gain in cases where we do not know enough about the micro behavior of consuming units to specify micro equations perfectly (20). It is true that the R^2 for the aggregate data will be generally higher than for the individual data, but the aggregate equation may explain the

---

[1] Let D, S, I, and p represent total demand, home-produced supplies, imports, and the relative price of agricultural products, respectively. Then it can be shown that: $\left(\frac{\Delta D}{\Delta p} \cdot \frac{p}{D}\right)\left(\frac{D}{I}\right) - \left(\frac{\Delta S}{\Delta p} \cdot \frac{p}{S}\right)\left(\frac{S}{I}\right) = \frac{\Delta I}{\Delta p} \cdot \frac{p}{I}$ or using elasticity symbols, $\eta_{\text{Demand home}} \frac{D}{I} - \eta_{\text{Supply home}} \frac{S}{I} = \eta_{\text{Imports}}$ Therefore, ηI (which is "c" above) is negative. But $\eta I > O$ iff: The supply of agricultural products is perversely shaped, $(\eta \frac{S}{H} < O)$ and $\frac{\eta D}{\eta S} < \frac{S}{D}$.

aggregate data better than all micro equations combined where these equations are not perfectly specified. Since we lack knowledge of the micro, income-trade relationship for each country, aggregation may have resulted in a net gain. In fact, the aggregation of income and trade data in this study generally supported the "net gain" hypothesis.

TABLE 23.--Estimates of population and growth rates, by economic areas, 1938, 1953-55, and 1959-61 averages

Economic areas	Population			Annual growth rate		
	1938	1953-55	1959-61	1938 to 1953-55	1953-55 to 1959-61	1938 to 1959-61
	Million	Million	Million	Percent	Percent	Percent
Developed	556	626	672	.7	1.3	.9
Western Europe	323	335	351	.3	.8	.4
European Economic Community[1]	171	163	169	.3	.6	.1
European Free Trade Area[2]	79	87	89	.6	.4	.6
Other Western Europe[3]	72	85	92	1.1	1.3	1.2
Canada	11	15	18	2.1	3.1	2.4
United States	131	163	181	1.4	1.8	1.5
Australia, N. Zealand, & So. Africa	19	25	29	1.8	2.5	2.0
Japan	71	88	94	1.5	1.0	1.4
Developed, excluding United States	424	463	492	.6	1.1	.7
Less developed	946	1,107	1,273	1.1	2.4	1.4
Africa[4]	162	210	239	1.8	1.8	1.7
Latin America	134	177	206	1.9	2.1	1.9
Asia[5]	650	720	840	.7	2.6	1.3
Eastern Trade Area	744	904	997	1.3	1.7	1.4
USSR	191	198	214	.2	1.3	.6
Eastern Europe[6]	82	85	97	.3	2.2	.8
China (Mainland)[7]	471	621	686	1.9	1.7	1.8
World Total	2,247	2,637	2,942	1.1	1.9	1.3

[1] Includes Belgium-Luxembourg, Netherlands, West Germany (except in 1938-40 when data are for all of Germany), France and Italy.
[2] Includes United Kingdom, Denmark, Norway, Sweden, Switzerland, Austria, and Portugal.
[3] Includes Finland, Greece, Iceland, Spain, Turkey, and Yugoslavia.
[4] Includes all countries except the Republic of South Africa.
[5] Includes all countries except Japan, China (Mainland), North Vietnam, North Korea, and Mongolia.
[6] Includes Czechoslovakia, Hungary, Poland, East Germany, (except in 1938-40 when included in Germany), Bulgaria, Albania, and Romania.
[7] Includes North Vietnam, North Korea, and Mongolia.

Source: Demographic Yearbook (47).

TABLE 24.--Annual growth of population and income of major areas, 1938, 1953-55, and 1959-61[1]

Year	Developed countries			Less-developed countries	Eastern Trade Area	All countries
	All	United States	Others			
	Percent (compounded)					
Population						
1938 to 1959-61	.9	1.5	.7	1.4	1.4	1.3
1938 to 1953-55	.7	1.4	.6	1.1	1.3	1.1
1953-55 to 1959-61	1.3	1.8	1.1	2.4	1.7	1.9
Total income[2]						
1938 to 1959-61	2.9	4.2	1.6	3.7	4.8	3.3
1938 to 1953-55	2.6	4.9	.5	4.2	5.5	3.2
1953-55 to 1959-61	3.4	2.5	4.7	2.5	3.9	3.6
Per capita income[2]						
1938 to 1959-61	2.0	2.7	.9	2.3	3.4	2.0
1938 to 1953-55	1.9	3.5	-.1	3.1	4.2	2.1
1953-55 to 1959-61	2.1	.7	3.6	.1	2.2	1.7

[1] Calculated from data in tables 3, 23, 25, and 26.
[2] Income data are unadjusted for inequalities in purchasing power among countries, and deflated by 1953-55 average of implicit GNP deflator for the United States to obtain growth rates.

TABLE 25.--Per capita estimates of income and imports, total and agricultural, by countries, 1938-40 averages

Country	Income	Total imports from--		Agricultural imports from--	
		All countries	United States	All countries	United States
	U.S. Dollars				
1. United States	563	17.13	---	8.50	---
2. Canada	383	60.87	46.46	14.70	6.68
3. Sweden	438	83.17	10.19	23.65	2.27
4. Switzerland	473	87.14	2.50	27.60	0.60
5. New Zealand	440	159.38	14.62	10.96	1.38
6. Australia	421	74.93	9.99	8.01	1.30
7. United Kingdom	513	89.66	10.96	62.17	5.26
8. Denmark	361	93.42	6.53	25.92	1.63
9. Belgium-Lux	262	88.16	8.84	66.31	2.95
10. Norway	332	101.03	7.76	28.28	2.07
11. France	267	32.38	3.26	30.40	1.20
12. Venezuela	111	27.43	14.91	9.00	1.20
13. West Germany	500	---	1.57	20.51	0.63
14. Netherlands	321	92.30	11.11	24.35	3.43
15. Finland	181	49.46	3.22	11.89	0.89
16. Czechoslovakia	135	16.37	1.82	15.21	0.29
17. Austria	161	57.21	---	25.44	0.01
18. USSR	105	1.44	0.37	0.57	0.01
19. Puerto Rico	149	---	---	---	---
20. Ireland	253	70.00	9.38	24.62	3.14
21. Hungary	125	13.37	0.29	6.18	0.02
22. Poland	95	7.15	0.71	2.39	0.37
23. Italy	144	13.79	1.35	8.45	0.62
24. Chile	172	21.02	5.02	5.28	0.16
25. Union of So. Africa	174	46.40	7.00	3.19	0.12
26. Panama	102	30.00	16.83	---	8.83
27. Argentina	270	32.34	6.33	4.23	0.12
28. Japan	913	13.96	3.27	3.51	0.63
29. Greece	81	18.59	1.13	7.20	0.16
30. Cuba	95	24.09	17.34	---	4.25
31. Costa Rica	76	21.67	9.00	---	1.50
32. Mexico	59	5.76	3.25	---	0.27
33. Brazil	48	7.47	1.57	1.78	0.04
34. Spain	101	6.01	0.48	---	0.29
35. Dominican Republic	46	6.88	3.50	---	0.44
36. Portugal	84	13.47	1.48	8.73	0.49
37. Yugoslavia	133	7.47	0.16	1.27	0.05
38. Nicaragua	50	9.57	4.00	---	0.57
39. Colombia	74	9.54	4.69	0.58	0.32
40. Surinam	55	20.00	---	---	1.00
41. El Salvador	37	5.62	2.19	---	0.25
42. Indonesia	22	3.63	0.40	---	0.02
43. Bulgaria	110	9.52	0.11	---	0.02
44. Turkey	68	7.00	0.78	---	0.03
45. Honduras	54	9.09	5.64	---	0.55
46. Philippines	28	8.35	5.47	---	0.56
47. Rhodesia & Nyasaland	17	51.43	---	1.43	---
48. Ecuador	79	5.00	1.38	0.95	0.25
49. Guatemala	51	10.00	3.24	---	0.43
50. Egypt	74	11.53	0.82	2.09	0.10
51. Peru	59	8.82	2.47	3.63	0.10
52. Ceylon	50	14.83	0.22	10.45	0.07
53. Paraguay	39	7.27	0.55	4.17	0.01
54. Haiti	50	2.96	1.33	---	0.30
55. Thailand	26	3.85	0.22	0.32	0.05
56. China (Mainland)	17	0.42	---	0.16	0.03
57. Congo (Ex Belgium)	55	3.59	0.17	---	0.01
58. India	34	1.87	0.11	0.35	0.02
59. Burma	28	4.94	0.15	1.04	0.01

Sources: (2, 10, 11, 24, 38, 41, 42, 43, 44, 48, 50, 55).

TABLE 26.--Per capita estimates of income and imports, total and agricultural, by countries, 1959-61 averages

Country	Income	Total imports from--		Agricultural imports from--		
		All countries	United States	All countries	United States	U.S. (commercial)
	U.S. Dollars					
1. United States	2,289	83.45	---	30.51	---	---
2. Canada	1,558	318.32	201.91	51.98	24.35	24.30
3. Sweden	1,491	366.84	33.99	64.33	5.85	5.85
4. Switzerland	1,384	426.63	42.95	102.64	9.72	9.72
5. New Zealand	1,300	329.11	26.88	30.67	3.19	3.19
6. Australia	1,171	204.57	31.39	27.96	2.74	2.72
7. United Kingdom	1,095	221.95	21.33	126.58	8.67	8.08
8. Denmark	1,059	384.28	23.57	94.13	12.22	12.01
9. Norway	966	409.78	23.87	64.94	8.88	7.92
10. Belgium-Luxembourg	1,018	409.41	41.20	100.55	13.37	12.91
11. France	1,006	132.04	10.72	52.14	2.22	1.87
12. West Germany	1,025	184.62	17.80	72.22	6.45	6.01
13. Iceland	932	477.78	70.59	87.93	16.97	5.77
14. Finland	810	229.57	11.72	40.91	2.83	1.96
15. Venezuela	729	159.38	81.06	31.94	12.28	12.26
16. Netherlands	802	393.99	56.26	103.18	27.74	27.39
17. Israel	763	235.85	57.62	63.05	26.12	6.54
18. Austria	672	190.81	9.62	42.24	2.98	0.69
19. Czechoslovakia	652	132.80	0.34	---	0.14	0.14
20. USSR	648	25.52	0.14	---	0.03	0.03
21. Ireland	534	230.74	13.38	58.50	6.83	4.88
22. Hungary	520	93.39	0.14	---	0.05	0.05
23. Italy	514	89.81	12.40	32.27	3.45	2.71
24. Poland	533	51.75	3.29	---	2.87	0.28
25. Chile	492	66.18	24.61	---	2.95	1.09
26. Trinidad & Tobago	466	353.57	39.67	61.88	10.36	10.32
27. Uruguay	434	72.59	16.95	---	5.37	1.41
28. Malta & Gozo	364	245.45	13.11	98.47	7.52	1.98
29. Union of So. Africa	397	91.21	15.28	9.79	1.12	1.01
30. Panama, Repub. of	335	101.85	88.09	16.00	8.95	8.79
31. Japan	347	49.69	14.25	19.16	4.91	4.69
32. Cyprus	341	195.46	---	45.33	8.34	8.34
33. Jamaica	354	128.57	27.02	33.38	6.08	5.48
34. Greece	334	79.35	7.65	15.71	2.67	0.57
35. Lebanon	307	185.89	26.43	54.12	5.58	2.41
36. Costa Rica	316	91.45	36.15	13.50	4.92	4.78
37. Mexico	312	31.74	21.81	---	1.69	1.64
38. East Germany	272	118.58	0.16	---	0.09	0.09
39. Spain	296	28.68	6.73	7.53	3.93	0.88
40. Bardados	245	200.00	22.81	---	7.07	7.07
41. Dominican Repub.	227	30.33	14.43	3.87	1.37	1.31
42. Portugal	233	152.43	4.57	15.38	1.62	1.24
43. Ghana	210	57.74	2.75	11.72	1.18	0.88
44. Yugoslavia	217	43.89	6.53	11.06	4.03	1.97
45. Nicaragua	211	47.97	20.11	4.86	2.07	1.97
46. Malaya, Fed. of B.B. Sing. Bro.	210	225.85	3.05	76.78	1.00	0.89
47. Mauritus & dependencies	210	103.12	1.45	36.17	0.17	0.14
48. Colombia	202	35.17	16.32	4.61	1.73	0.79
49. British Guiana	213	138.60	18.59	26.67	5.38	5.31
50. Algeria	228	105.25	2.83	---	0.89	0.76
51. Bulgaria	192	79.54	0.04	---	0.03	0.03
52. Turkey	176	17.33	4.67	2.11	1.72	0.09
53. Honduras	179	37.50	18.69	4.35	2.05	1.93
54. El Salvador	175	43.70	15.00	8.40	2.14	2.03
55. Iraq	161	52.82	4.78	---	0.47	0.32
56. Tunisia	156	44.36	5.60	---	3.88	2.38
57. Rhodesia & Nyasaland Fed.	157	51.80	1.54	23.58	0.07	0.06
58. Guatemala	154	35.81	16.50	---	2.44	2.13
59. Ecuador	146	21.99	11.74	2.57	1.40	1.06
60. Philippines	130	20.85	10.76	---	2.30	1.62
61. Brazil	129	20.29	6.18	3.43	0.96	0.41
62. Morocco	124	34.34	3.99	---	2.21	0.04

TABLE 26.--Per capita estimates of income and imports, total and agricultural, by countries, 1959-61 averages--Continued

Country	Income	Total imports from--		Agricultural imports from--		
		All countries	United States	All countries	United States	U.S. (commercial)
	- - - - - - - - - - - -		-U.S. Dollars-		- - - - - - - - - - - -	
63. Egypt (U.A.R.).....	117	25.46	5.37	8.33	3.51	0.72
64. Jordan.....	168	70.06	11.19	---	6.43	0.14
65. Peru.....	130	35.73	13.74	---	1.95	1.00
66. Syrian Arab Repub.....	127	46.15	5.59	---	2.96	0.43
67. Ceylon.....	121	40.10	1.76	17.58	1.11	0.20
68. China (Taiwan).....	110	26.70	11.10	---	5.75	1.28
69. Bolivia.....	104	20.29	7.17	---	1.68	0.60
70. Paraguay.....	107	17.51	5.44	---	1.19	0.16
71. Korea, Repub. of.....	102	13.01	6.11	---	2.95	0.33
72. Kenya.....	87	26.23	---	2.42	---	---
73. Thailand.....	83	17.27	2.35	2.02	0.40	0.34
74. Sudan.....	87	16.55	0.58	---	0.01	0.01
75. Cambodia.....	88	17.76	1.62	---	0.44	0.07
76. Pakistan.....	76	5.94	1.68	---	0.90	0.06
77. China (Mainland).....	74	3.19	---	---	---	---
78. Congo (Ex Belgium).....	70	21.78	2.04	---	0.44	0.18
79. Nigeria, Fed. of.....	67	16.41	0.67	2.35	0.23	0.20
80. India.....	68	5.04	1.12	1.32	0.69	0.07
81. Indonesia, Repub. of...	56	6.60	1.02	1.38	0.24	0.05
82. Tanganyika.....	55	11.26	---	0.88	---	---
83. Uganda.....	51	10.93	---	0.68	---	---
84. Burma.....	50	11.16	0.37	2.06	0.06	0.01
85. Guinea.....	66	19.58	---	---	---	---
86. Togo.....	83	15.17	---	---	---	---
87. Argentina.....	364	60.20	16.25	5.76	0.13	0.11

Sources: (10, 11, 13, 15, 16, 17, 24, 48, 49, 50, 51).

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